# Knowledge of nutrition facts on food labels and their impact on food choices on consumers in Koforidua, Ghana: a case study

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## Abstract

**Objective:** The aim of this study was to investigate consumers' knowledge of food labels and how this knowledge guides their decisions when making purchasing choices with regard to food.

**Design:** This was a descriptive research design study.

**Setting:** The setting was the suburb of Koforidua Municipality in the Eastern region of Ghana.

**Subjects:** One hundred and forty-three customers were observed in store from four randomly sampled supermarkets. One hundred of these customers completed a self-administered questionnaire.

**Outcome measures:** Measurements included observation and a self-administered questionnaire that elicited information on label-reading habits, attitudes towards health awareness and the influence of food labels on food choices. Data were analysed using descriptive statistics.

**Results:** Sixty-five of the 100 consumers (54 females and 46 males) who consented to respond to the questionnaire looked at or read food labels before selecting a food to purchase. Seventy-five per cent reported reading the food labels prior to selecting food. This study found that nutrition knowledge had a low to average impact on consumers' food choices. Half of the consumers who reported reading the food labels did not do so regularly. This could have implications on how often such information is used when purchasing food. Also, only 22% of the study respondents answered correctly when asked to explain "26% RDA (recommended dietary allowance) vitamin A per serving" on a food label, even though 45% of the respondents had a tertiary education.

**Conclusion:** These findings indicate awareness and knowledge of food labelling which may not always adequately impact on food choices, even though study respondents indicated high awareness and low to average reading of labels prior to purchasing food.

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## Introduction

In an age of increasing nutrition awareness and the health implications of suboptimal nutrition, the World Health Organization[1] has launched a crusade to encourage consumers to adopt healthier lifestyle behaviour, and has established worldwide plans and policies to encourage healthier eating patterns. These policies help to enforce rigorous guidelines pertaining to food labelling as an essential way of presenting good nutrition information to people. Some countries in Africa, like South Africa,[2] took bold steps to publish food labelling legislation in 2010. A 2012 workshop on national food safety issues was presented to discuss issues on food safety, including food labelling in Ghana. It is hoped that this will lead to the development of comprehensive food labelling legislation, in addition to other food safety-related issues in Ghana.

The need for manufacturers to provide information on specific nutrients in food products could help to minimise under- and overnutrition in consumers since the information has the potential to guide them to be familiar with the nutritional content of the foods that they eat.[3] The primary roles of food labels are to inform consumers about nutrition, help them compare the nutrients in similar products and choose the one that best suit their needs,[4,5] as well as helping them to make healthy food choices.[5-7]

Although manufacturers provide nutrition facts on products, it is worth deliberating consumers' knowledge of this information, and their willingness to read, understand and use the information as a guide when making decisions about what food to buy. There is a paucity of data on consumer knowledge or utilisation of food labelling information in Ghana. A recent study on consumers' use and understanding of food label information and its effect on their

purchasing decisions in Kumasi, Ghana, highlighted the need for consumers to read and critically examine food labels before purchasing.[8] This followed repeated instances where noncertified, expired or fake products were sold to the public.[9]

This study sought to provide some baseline information on knowledge of food labels and the understanding and utilisation of this knowledge when choosing food by consumers living in the Koforidua Municipality (within the eastern region of Ghana). It is hoped that the results that are obtained from this study will motivate change in consumer behaviour and contribute to the facilitation of reading and use of food labelling in the region.

## Method

### Study design

A descriptive research design was used.

### Study population

Food consumers in Koforidua formed the population for the study.

### Selection of subjects

Purposive sampling was used to identify Nsukwao, a settlement in the Koforidua Municipality of Ghana with the most supermarkets. The names of the supermarkets in Nsukwao (n = 13) were written on paper and placed in a bowl. Four were selected randomly. Customers' use of nutrition information (n = 143) was observed in each supermarket, but observations were only reported for those who responded to the structured questionnaire (n = 100). Twenty-five consumers from each of the four supermarkets were conveniently sampled, and consenting customers given the questionnaire to complete in store. The observation results for the remaining 43 customers who declined to participate in the study were discarded.

### Data collection

The study comprised two parts. Firstly, in-store observation of consumer label reading was performed by an observer, positioned at the end of the aisle of different food product categories, with an excellent view thereof. Observations began when a customer came down the aisle to select a product. A record was made with regard to each selected product as to whether or not the customer read the label, ignored it or did not look at the product in detail before placing it into the basket or back on the shelf. Documentation was discarded on customers who left the aisle without placing at least one product in their basket. Those who selected at least one item to buy were approached. Informed written consent was obtained from consumers who were willing to complete the questionnaire. The observation helped to compare responses to a questionnaire provided in the second part of the study on consumers' habits when shopping.

The self-administered questionnaire was administered in English or Twi, a local dialect. Questions covered respondents' demographics, knowledge, awareness and understanding of food labels, and use thereof when choosing food. It also covered whether or not they had bought the selected food before, and their reasons for choosing it. Closed- and open-ended questions were used. The questionnaire was pilot tested using 20 respondents from Asokore in the same municipality as the study area. On average, respondents took approximately 20 minutes to answer each questionnaire. Questions were read to illiterate respondents by the researcher in Twi, and their responses captured.

### Statistical analysis

Data were analysed with support of the Statistical Package for Service Solution® version 16, and the results presented in frequencies and percentages.

## Results

### Demographics of consumers

One hundred and forty-three customers were observed, but 100 of these responded to the questionnaire. Consumers' background information indicated that the majority of respondents (48%) were between the ages of 15 and 25 years, had a tertiary education (45%), were students (38%) and were mostly female (54%) (Table I).

It was noted from observing the 100 customers who consented to respond to the structured questionnaire that an average of two

**Table I:** The demographics of respondents (n = 100)

| Variable | Frequency | % |
|---|---|---|
| **Age (years)** | | |
| 15-25 | 48 | 48 |
| 26-35 | 29 | 29 |
| 36-45 | 14 | 14 |
| 46-55 | 6 | 6 |
| 56-65 | 2 | 2 |
| 66-75 | 1 | 1 |
| **Marital status** | | |
| Single | 70 | 70 |
| Married | 28 | 28 |
| Divorced | 1 | 1 |
| Separated | 1 | 1 |
| **Occupation** | | |
| Farmer | 5 | 5 |
| Trader | 28 | 28 |
| Student | 38 | 38 |
| Civil servant | 18 | 18 |
| Other | 11 | 11 |
| Sex | | |
| Male | 46 | 46 |
| Female | 54 | 54 |
| **Level of education** | | |
| Basic | 3 | 3 |
| Junior high school | 5 | 5 |
| Senior high | 23 | 23 |
| School or vocational, and technical tertiary | 45 | 45 |
| **Total** | 100 | 100 |

products were bought. Sixty-five per cent read the labels, 24% did not look at the label and 11% (n = 11) examined every detail of the label and the product before placing it in the shopping basket.

## Nutrition knowledge

When asked whether or not they were aware of food labels, 80% responded "yes". When asked if they had read the nutrition information on the labels before placing food products into the baskets prior to purchasing, 49.3% (n = 37) of the 75% respondents who reportedly read the labels did so regularly (Table II).

**Table II:** Respondents' awareness and reading of food labels (n = 100)

| Awareness | Frequency (n) | % |
|---|---|---|
| Yes | 80 | 80 |
| No | 20 | 20 |
| **Reading** | | |
| Yes* | 75 | 75 |
| No | 75 | 25 |
| **Reading regularly*** | 37* | 49.3* |
| **Not reading regularly*** | 38* | 50.7* |
| No | 25 | 25 |
| **Total** | 100 | 100 |

*: These are participants who reported that they read food labels

The remaining 25 respondents who did not read the labels gave different reasons for not doing so. Sixty per cent (n = 15) reported that they did not have much time to read the labels in store; 8% (n = 2) were ignorant about food labels; 8% (n = 2) did not understand the information presented on the labels and thus were not motivated to read them; 4% (n = 1) were not interested in food labels, were lazy with respect to reading food labels or knew exactly what they were going to buy before entering the supermarket. Twelve per cent (n = 3) thought that it was not necessary to read them and the remaining 8% did not provide reasons.

Respondents (n = 80) indicated that their awareness of nutrition facts was from reading food labels (75%, n = 60). 13.7% (n = 11) obtained that knowledge from family members and friends, while 11.3% (n = 9) acquired nutrition facts from the media.

## Reasons for reading food labels and the time taken for the labels to be read

In response to an open question, the main reason why labels were read was to ascertain the nutritional content (40%, n = 30), the quality of the food (28.6%, n = 23) and for health reasons (9.3%, n = 7) (Table III). Approximately 73% of the respondents who read the food labels did so in the supermarkets before buying food and 25% did so after taking the food home. Only 1.4% read the food labels after using the food.

Seventy per cent (n = 53) of the respondents who read food labels (n = 75) were influenced by the label and changed their minds about buying specific foods. Thirty per cent (n = 22) were not influenced by reading food labels. 2.6% (n = 2) read labels, but never made decisions to buy food based on the food label, 75% (n = 49)

**Table III:** Reasons for reading the nutrition facts on food labels (n = 75)

| Reason | Frequency | % |
|---|---|---|
| To obtain information on what was to be consumed | 5 | 6.7 |
| To establish the nutrition content of the food | 22 | 29.3 |
| To establish the fat content of the food | 2 | 2.7 |
| To check the sugar content of the food | 1 | 1.3 |
| To ascertain the manufacturing and expiry date | 19 | 25.3 |
| To check if the food was an inferior product | 4 | 5.3 |
| Health reasons | 3 | 4 |
| To avoid buying unhealthy food | 4 | 5.3 |
| To determine the ingredients in the product | 5 | 6.7 |
| To establish directions on how to use the food | 1 | 1.3 |
| To make the right choice | 9 | 12 |
| **Total*** | 75 | 100 |

*: These are participants who reported that they read food labels

sometimes used food labels to select a product, and 32% (n = 24) often used food labels as a guide to purchasing food.

In addition to food labels, respondents (n = 100) identified factors such as price (30%), expiry dates (21%) and brand name (12%) as important factors in determining their choice of food.

Respondents were asked what they understood by "26% RDA (recommended dietary allowance) vitamin A per serving" on a food label as a way of assessing their understanding of food labels. Fifty-one per cent of respondents explained that it meant that the product contained 26% vitamin A. Twenty-seven per cent understood it to mean that 26% of vitamin A would be obtained from eating any amount of the food, and 22% answered correctly that every 100 g of the product eaten would meet 26% of any individual's daily requirement for vitamin A.

Eighty per cent of respondents either agreed or strongly agreed with the statement that food labels were important and impacted on their choice of food. Seventeen per cent either disagreed or strongly disagreed with this premise (Table IV). Nearly half of the respondents in this study suggested that mass education should be used as a way of promoting the reading and understanding of food labels. Two per cent suggested that food labels should be written in local languages.

**Table IV:** Nutrition information was the major factor that determined respondents' choice of food product (n = 100)

| Response | Frequency | % |
|---|---|---|
| Strongly agree | 39 | 39 |
| Agree | 41 | 41 |
| No response | 3 | 3 |
| Disagree | 14 | 14 |
| Strongly disagree | 3 | 3 |
| **Total** | 100 | 100 |

This study found that knowledge of nutrition labels had a low to average impact on consumer food choices and thus purchases. Considering that approximately half of the consumers (Table II) who

reported reading food labels did not do so regularly could affect how often the information was considered and used by consumers. Also, only 22% of the study respondents answered correctly when asked to explain "26% RDA vitamin A per serving" on a food label. Thus, the relationship between the nutritional knowledge of these consumers and the understanding of food labelling showed that the nutritional label may not have influenced their choice of food purchases much.

## Discussion

This study was conducted by combining in-store observations with a structured questionnaire to obtain baseline information on consumers living in the Koforidua Municipality, Ghana, on their knowledge, reading and interpretation of labels and level of food label usage. Similar findings were reported in studies conducted in Frankfurt, Germany, and the UK on the use of food labels. The focus was on self-reported behaviour. Forty to sixty per cent of respondents asserted that they always or often read food labels when shopping.[10-12] Other studies conducted in France and Britain suggested that food labels were used less, e.g. within the range of 24-33%.[13-16] This was an exploratory study and there were few documented similar studies in Ghana against which to compare the findings of this one, so it was difficult to determine the validity of the obtained results, especially considering that nearly half of the study population had a tertiary education, whereas other studies reportedly used respondents who were less well educated.

Sixty-five of the 100 consumers who consented to respond to the questionnaire looked at or read food labels before selecting a food to purchase. Twenty-four did not look at labels and 11 examined them in detail before placing the products in their shopping basket. These numbers could suggest that in this study, customers made an effort to look at labels and read them, rather than just engaging in routine buying.

Similar to the findings in this study, Mannell et al[16] reported that French middle-aged or younger adults were more likely to read food labels than older individuals. This could be attributed to the fact that adolescents and young adults need to obtain optimal nutrition during adolescence to maintain growth, prevent nutritional deficiencies and ensure good health.[17] More than one third of respondents in this study were high school and tertiary-level students, between the ages of 15 and 25 years, who lived in and were schooled in the study area (Table I). Women shop and cook for the household in Ghana, yet nearly half of the respondents in this study were males. Osei Mensah et al[8] carried out a similar study in the Ashanti region of Ghana, and found that highly educated male consumers were more likely to read and use food labels than other males.

In an attempt to ascertain if providing food label information would help Americans to change their behaviour and reduce their waist circumference, Ollberding et al[18] observed significant differences in the mean nutrient intake between food label users and non-users. The label users reported a healthier consumption level with regard to total calories, total fat, saturated fat, cholesterol, sodium, dietary fibre and sugar. In a similar study on reading and the use of food labels, the Asian Productivity Organization[19] reported that individuals often read food labels before making a judgement about the overall value of the food. Thus, the information obtained from reading food labels could subsequently impact on the value placed on food, and willingness as to whether or not to eat it. In this study, nine of the 10 respondents did not understand the food labels, despite claiming to do so, as they couldn't explain what "RDA 26% vitamin A per serving" meant. Thus, this situation warrants further investigation. Consumers should be presented with in-depth questions to elicit their knowledge of food labels and provide more conclusive evidence. The problem of consumers not always understanding food label information has been reported in other studies.[20,21] A study conducted in Malawi noted that of 60 consumers, 7.3% had a good understanding of what they read in the nutrition panels, 18% partly understood such information, and the remaining 73.8% did not understand it. This level of literacy is probably the same in Ghanaians as it is in Lilongwe, Malawi.[22]

Kempen, Muller, Symington and van Eeden[2] established a relationship between patterns of reading food labels, health awareness and lifestyle behaviour in a study in Gauteng. They reported that people who often read food labels were more health conscious and maintained a healthier lifestyle.[2] In this study, more than half of the respondents reported that they didn't read food labels as they didn't have much time to do so while shopping. Current literature indicates that reading food labels helps individuals to make healthier choices when shopping.[4,6,18] However, in this study, a low percentage of the respondents (9.3%, n = 7) indicated that they read food labels for health reasons.

Although one third of the respondents in this study cited price as an important factor in determining the choice of food purchased, other studies[20] found that consumers who placed too much emphasis on price were less likely to read and use food labels.

Other benefits to be obtained from reading labels were reported in research conducted in the UK and the USA, such as helping consumers to make easier comparisons among food products.[5,23] Wansink reported that consumers tend to fully process and believe health claims more when these claims are brief and placed on the front of packages, and less when these claims are lengthy and placed behind them.[23] Nearly half of the respondents in this study suggested that mass education was a good way of promoting the reading and understanding of food labels.

This study showed that the rate of awareness among respondents was high as more than three quarters were aware of food labels, and yet only a third read them regularly before purchasing food. Also, being familiar with food labels, reading them, and understanding the information contained therein (which seemed to vary among respondents) did not impact on their choice with regard to food purchases. Making nutrition information available to adult consumers living in the Koforidua Municipality, Ghana, could help to promote the reading of food labels and the application of food facts when making healthy food choices.

## Conclusion

The findings indicate that awareness and knowledge of food labelling may not always adequately impact on food choices, even

though study respondents indicated high awareness, and low to average reading of the labels prior to purchasing food. Usually, there is a relationship between reading food labels and health in European studies.[21,24] Food labels are a useful source of information through which consumers' food choices are shaped. Thus, it is important to educate consumers to read food labels, and on how to understand them and apply the information when making food choices.

Although this study indicated a low to average level of knowledge with regard to food labels in this group of Koforidua customers, such findings should be interpreted with caution as this was an exploratory study. Different consumers demonstrate varying levels of knowledge with respect to food labels, and a subsequent varying impact on food choices might result. Further research on more Ghanaian consumers is required to determine whether or not the results obtained in this study apply to the general Ghanaian consumer population.

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