

# Food label reading and understanding in parts of rural and urban Zimbabwe

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## Abstract

**Background:** Overweight and obesity prevalence is rapidly rising in developing countries. The reading and understanding of nutrition information on food packages has been shown to improve food choices and instill healthy eating habits in individuals.

**Objective:** The aim of this study was to describe the prevalence of food label usage and understanding among urban and rural adults in Zimbabwe and its association with demographic and socio economic factors.

**Methods:** A cross sectional study was conducted on 320 adults (147 urban and 173 rural) using a validated questionnaire adapted from previous similar studies. Data were analysed using SPSS-17 statistical software.

**Results:** A high proportion (77.2%) of the respondents read food labels. Food label reading differed significantly by educational status ( $p < 0.05$ ), employment status ( $p < 0.05$ ) and locality ( $p < 0.05$ ). Only 40.9% of food label readers mostly understood the information on the food labels. More urban shoppers (86.1%) read food labels than their rural counterparts (66.7%). A significant number of participants (80.6%) indicated they would like to be educated on the meaning of food labels and 80.3% preferred the nutrition information on food labels to be simplified.

**Conclusion:** The study found above average reported reading of nutrition information on food labels with partial understanding. Efforts should be made to determine how all consumers could be made to understand the nutrition information on food labels and use it effectively in decision making.

**Key Words:** food, labels, reading, nutrition, information

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## Introduction

The disease burden from non-communicable diseases (NCDs) is rapidly increasing in Zimbabwe and many other African countries based on projections from a few studies<sup>1-3</sup>. Diet related chronic diseases such as diabetes mellitus, cardiovascular diseases and heart disease have been reported to be among the leading cause of death and disability in developing countries<sup>3-5</sup>. It is estimated that the prevalence of diabetes mellitus in individuals between the ages of 20 to 79 years will increase from 235 000 in 2010 to 389 000 in 2030<sup>4</sup>. Coronary artery

disease is also reported to be on an upward trend in Sub Saharan Africans<sup>6</sup>. Diets specifically high in saturated fats, high in salt and low in fruits and vegetables have been associated with increased morbidity and mortality from these conditions<sup>7</sup>. An important modifiable factor that can reduce the prevalence of NCDs is the reduction of overweight and obesity<sup>8,9</sup>. Overweight and obesity have been associated with poor food choices and lack of physical activity<sup>10</sup>. The reading and understanding of nutrition information on food packages has been shown to improve food choices and instill healthy eating habits in individuals<sup>11-13</sup>.

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The labelling of foods in most countries is subject to regulations. These regulations prevent false advertising and assist in promoting food safety. A nutrition panel on a food label is required on all packaged foods in most countries. In Zimbabwe, food labelling is governed by the Food and Food Standards Act 15:04 and Regulations of 2002. These regulations prescribe rules for any substance fit or intended for human consumption. Nutrition labelling is defined by the Act as “a description intended to inform the consumer of nutritional properties of a food”. Nutrition labelling consists of two components: a nutrition declaration

and supplementary nutrition information. Nutrition labelling is voluntary in the country and required only when nutrition or health claims are made on pre-packaged foodstuffs or in food advertising. Energy, protein, fat and carbohydrates must be displayed on the

nutrition information panel (NIP) of foods with claims. The Act also specifies that food labels shall be affixed on a conspicuous position on the package <sup>14</sup>. In this study the word 'reading' of food labels is used synonymously with 'usage'. Figure 1 shows an example of a food label manufacturers are required to affix on products.

Figure 1: An example of a nutrition information panel manufacturers are required to affix on products in Zimbabwe

Nutritional Information				
Serving size 1 cup (200g)				
Servings per container 2				
	Per 100g		Per serving (200g of yoghurt)	
Energy	351.4	Kj	702.8	Kj
Protein	3.8	g	7.6	g
Carbohydrate	12.4	g	24.8	g
-sugars	9.7	g	19.4	g
Total Fat	1.7	g	3.5	g
Cholesterol	6.8	mg	13.7	mg
Total Dietary Fiber	0.0	g	0.0	g
Sodium	53.8	mg	107.7	mg
Calcium	133.4	mg	266.8	mg

Despite the presence of an effective instrument to regulate food labelling in Zimbabwe it is unknown whether consumers use and or understand the nutrition information on food labels. The study was undertaken to provide baseline information for a nutrition education exercise targeted at adult shoppers by the Institute of Food, Nutrition and Family Sciences. To our knowledge no studies have examined food label usage and understanding in Zimbabwe. This study is the first of its kind in the country and the findings can provide useful, baseline information for healthcare professionals, the government, the food industry, the academia and consumers. In this paper, using data from a cross sectional study we have described the prevalence of food label reading and reported level of understanding amongst a sample of rural and urban consumers in Zimbabwe.

**Materials and methods**

This study was cross sectional in nature and conducted in the urban and rural areas surrounding Harare from May to July 2013. The study engaged respondents from three largest shopping malls in Urban Harare - Westgate, Machipisa and Eastgate and from grocery stores in

Dema, Seke and Domboshava, rural areas in the country. Respondents were approached at random as they exited from the malls and stores. Verbal consent was sought from shop owners and respondents before undertaking the study. No questionnaires were administered inside the shops as this would have disrupted normal activity and consumer behavior. Convenient sampling was used to sample 320 adults exiting supermarkets and grocery stores in the selected areas.

**Questionnaire Design**

Data were collected through a structured questionnaire developed based on questionnaires used reliably in previous studies <sup>15-18</sup>. The questionnaire was administered to respondents, and assessed the use and understanding of food labels. It was slightly adapted and consisted of 3 sections. Section A assessed the demographic characteristics of the respondent and whether they use nutrition labels on products. Section B examined food products that label readers consult and information of interest on the label. Section C investigated the adequacy of information on the current labels and suggestions for improvements.

## Statistics

Data entry and analyses were performed using SPSS version 17 (SPSS Inc. Chicago, IL, USA). Descriptive statistics and Chi square test were generated to describe the findings. Incomplete questionnaires were not used in the final analysis.

## Results

### *General characteristics of the respondents*

A total of 320 individuals participated in the survey, comprising 147 urban and 173 rural consumers. The majority of respondents were females (51.6%) aged between 18- 30 years, with secondary level of education. The remaining general characteristics of the study participants are presented in Table 1.

**Table 1: Description of food label readers and non-readers**

Characteristic		Non label readers (%)	Label readers (%)
All individuals	N=320	22.8	77.2
Sex			
Male	N=138	27.5	72.5
Female	N=165	19.4	80.6
Age group			
<18	N=26	15.4	84.6
19-30	N=153	22.9	77.1
31-50	N=111	24.3	75.7
>51	N=25	28	72
Education status*			
None	N=1	0	100
Primary	N=20	55	45
Secondary	N=186	24.7	75.3
post secondary	N=89	13.5	86.5
Employment status*			
Student	N=39	12.8	87.2
Unemployed	N=116	31.9	68.1
Employed	N=156	18.6	81.4
Income per month			
<US\$400	N=101	17.8	82.2
US\$401-500	N=39	15.4	84.6
US\$501-1000	N=25	24.0	76
US\$1001-1500	N=12	16.7	83.3
US\$>1501	N=15	20.0	80
Marital Status			
Single	N=105	20.9	79.1
Married	N=185	24.3	75.7
Divorced	N=7	14.3	85.7
Widowed	N=15	20	80
Residential Status			
Low	N=64	20.3	79.7
Medium	N=125	21.6	78.4
High	N=89	16.8	83.2
Locality*			
Rural	N=147	33.3	66.7
Urban	N=173	13.9	86.1

\*Differences between groups are statistically significant at  $p < 0.05$  based on chi-square test.

Results do not add up to 320 due to missing responses

### Food Label reading

More females (80.6%) than males (72.5%) were food label readers however the difference was not significant. Label reading increased with educational status, with the majority of students (87.2%) and employed people (81.4%) being label readers. Food label usage decreased with increasing age group however the difference

was not significant between the groups. There was a significant difference between label usage and residential area. More urban shoppers (86.1%) read labels than their rural counterparts (66.7%).

### Reasons for reading food labels

Buying a product for the first time was identified as one of the major reasons for reading food labels by 27.8% of the respondents (Figure 2).

Figure 2: Bar graph indicating when respondents read food labels



Fewer respondents read labels when comparing products (18%), when buying certain food products (13.8%), when purchasing food for the family (12.4%), and when observing specific diet to lose weight (3.7%).

Generally urban respondents mostly read food labels when purchasing a product for the first time and most rural respondents reported that they would read a label when trying to lose weight (Table 2).

Table 2: Label reading characteristics by locality

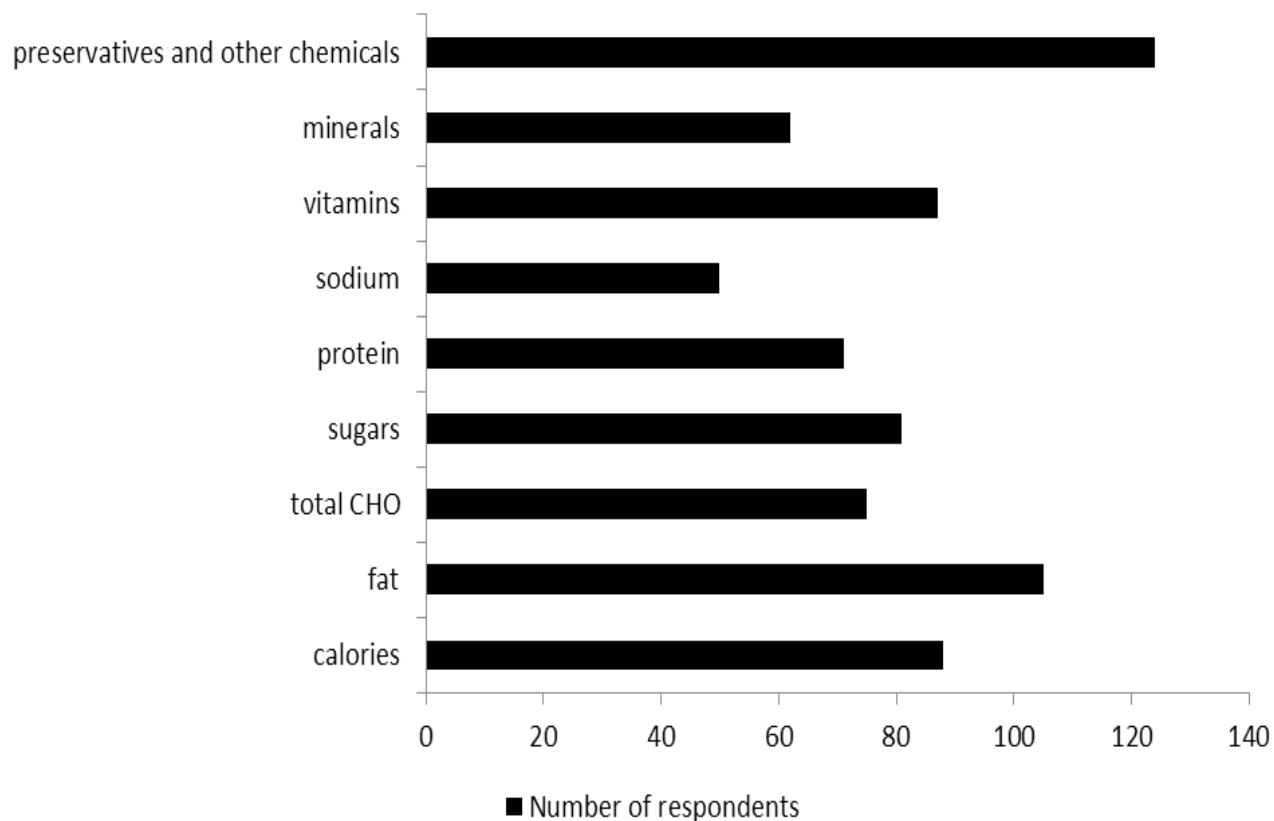
	Urban N	%	Rural N	%	Total N
<b>When do you read food labels?</b>					
When buying a product for the first time	73	65.2	39	34.8	112
When buying certain foods	32	57.1	24	42.9	56
When buying all foods	57	58.8	40	41.2	97
When trying to lose weight	7	46.7	8	53.3	15
When buying products for my family	24	48.0	26	52.0	50
When comparing products	45	61.6	28	38.4	73
<b>Which food constituent is of interest on labels</b>					
Calories	55	62.5	33	37.5	88
Fats	76	72.4	29	27.6	105
Total carbohydrates	41	54.7	34	45.3	75
Sugars	49	60.5	32	39.5	81
Protein	39	54.9	32	45.1	71
Sodium	29	58.0	21	42.0	50
Vitamins	41	47.1	46	52.9	87
Minerals	28	45.2	34	54.8	62
Preservatives	81	65.3	43	34.7	124
<b>Factors considered when buying food products</b>					
Ingredients	90	56.3	70	43.8	160
Net volume/weight	40	48.8	42	51.2	82
Date of expiry	136	56.2	106	43.8	242
Taste	52	52.0	48	48.0	100
Price	95	55.6	76	44.4	171
Storage conditions	70	51.9	65	48.1	135
Instructions of use	76	53.5	66	46.5	142

**Food constituents of interest to the label readers**

Of interest to most respondents rural and urban combined were the levels of preservatives and chemicals in any particular food or drink they were purchasing

(16%) (Figure 3). Other constituents respondents were interested in were nutrients, including fat (14%), vitamins (11.7%), calories (11.8%), total carbohydrates (10.1%), sugars (10.9%), protein (9.5%) and sodium (6.7%).

Figure 3: Bar graph showing the type of food constituents label readers specifically targeted on food labels



Urban respondents mostly looked for fat content on food labels whilst rural respondents mostly looked for minerals and vitamins on labels (Table 2).

#### Factors considered when purchasing a food product

A significant number of participants considered the expiry date as important when purchasing a food product (23.4%) (Figure 4).

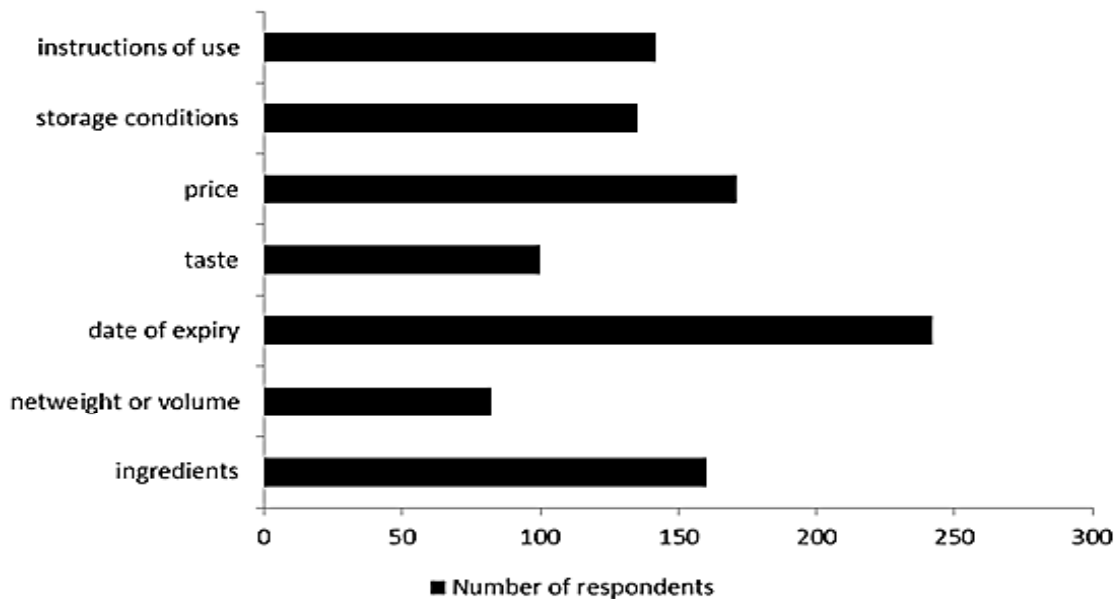
Ingredients (15.5%) and price (16.6%) were the second most important factors to consider when purchasing a food product. An almost equal number of respondents considered storage conditions (13.1%), and instructions of use (13.8%) as also important. Urban respondents considered ingredients and date of expiry as important factors when purchasing food products whilst their

rural counterparts considered net weight or volume of a food product (Table 2).

#### Understanding of food labels

Of the label readers, less than half of the respondents (40.9%) claimed to ‘mostly understand’ nutrition labels, while 51% reported partial understanding. Most individuals who participated in the survey (80.6%) suggested the need for education on food labels. A total of 80.3% preferred food labels to be simplified. A small percentage (7.5%) did not want them to be simplified and 7.2% did not ‘really care’. More than half of the respondents (54%) said food labels provided adequate information. On ‘any other information respondents would like declared on food products’, 5.5% requested for valid, truthful food labels, 8.6% would like allergens declared on labels and 3.5% requested to have more details on food labels.

Figure 4: Bar graph showing factors the shoppers considered before purchasing any food item



## Discussion

The results showed that the majority of the respondents read labels (77.2%), with partial understanding (51%). Most of the respondents were not familiar with the terminology and language used and requested for some form of education (80.6%) and simplification of labels (80.3%). Figures much lower than these have been reported in studies conducted elsewhere. For example, one study in Malawi found low usage (29.1%) and low understanding (26.2%) of nutrition labels<sup>16</sup>, while another study in South Africa reported nutrition label use of 55%<sup>19</sup>. Figures from the developed world show much high prevalence of food label reading. A study in America found at least 80% of consumers usually or often read nutrition labels<sup>12</sup>. Another study conducted among African Americans found 78% of consumers read nutrition information on labels<sup>20</sup>. A review of 15 European countries revealed the following prevalences of food label reading; UK 52%, Ireland 65%, Sweden 50% and France 63%<sup>21</sup>. The reading may be high in Zimbabwe compared to Malawi (29.1%) and South Africa (55%) due to high literacy rates in Zimbabwe estimated at 90.7%<sup>22</sup>. However the figures should be interpreted with caution across studies in view of the self-reported measures used to assess utilization and understanding of nutrition information on products. The study found that urban and female consumers were

more inclined to read food nutrition labels than their counterparts, a finding that is consistent with the results from previous studies by various researchers. Rural consumers or individuals with low socio economic status tend to attach more importance to price and are less likely to consult labels<sup>23</sup>. A number of studies in the UK, U.S., Australia and Sri Lanka have also found that women read labels more than men<sup>12, 24-29</sup>. This may be because men are less likely to agree on the usefulness of nutrition information on labels and in general have been shown to display less interest in nutrition and health issues compared to women<sup>26</sup>. Of highest interest to most respondents both rural and urban, were the levels of preservatives and chemicals in any particular food or drink they were purchasing (Figure 4).

Sixteen percent (16%) of the respondents cited these as the constituents they are most interested in on food labels. Only 14% of all respondents were interested in the fat content. In terms of nutrients, fats and calories are nutrients frequently cited in most studies as nutrients of interest on food labels<sup>30</sup>.

There was little interest in sodium (6.7%) arguably because consumers may not be aware of the association between cardiovascular disease and salt intake<sup>31</sup>. The real reasons will need further investigations. Urban



respondents mostly looked for fat content on food labels whilst rural respondents mostly looked for minerals and vitamins on labels. The link between high calorie intake and obesity has well been explained in literature readily accessible to urban respondents and it is this knowledge that could be influencing the choices made by urban respondents. Rural respondents considered net weight or volume of a food product whilst urban respondents considered ingredients and date of expiry as important factors when purchasing food products. This may have been influenced by rural respondent's quest for value for money<sup>23</sup>.

The major strength of the study was that respondents and supermarkets were selected from both rural and urban areas randomly. However this study has some limitations. Firstly the small sample size may mean that the results are not generalizable. Further research is required with a larger sample size to make the results conclusive rather than suggestive. Secondly, the study made use of self-reports, and as a result consumers may have reported intended rather than actual shopping behaviours.

Despite these limitations the findings of this study have some public health implications. High levels of reading with limited understanding of nutrition information on food labels may mean that more effort should be made in making simplified labels or in consumer education. Barriers to reading labels and the actual usage of the labels in guiding purchase decisions need to be investigated. The socio demographic differences with regard to food label use must assist public health care professionals in channeling interventions to those groups in need. Low levels of reading food labels in rural areas mean that public health efforts should be channeled towards education of rural consumers about nutrition labels.

## Conclusion

The study found high prevalence of reading with partial understanding of the nutrition information on food labels in both rural and urban Zimbabwe. Efforts should be made to determine how all consumers could be made to understand and use food labels effectively.

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