Awareness and Practice of Reading Packed Food Labels and its Associated Factors among Consumers in Addis Ababa, Ethiopia

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Abstract

Background: In Ethiopia, consumption of packaged foods is increasing due to changes in overall lifestyle since such transition may lead to an increase in the incidence of Non-Communicable Diseases (NCD). The quality and safety of food produced needs to be read and verified against the nutrition labeling or information of the packaging, which is a crucial step to help consumers make healthier choices when choosing packaged foods.

Objectives: Assessing the level of awareness and practice of using nutrition labels on packed foods and its associated factors among consumers in selected supermarkets in Addis Ababa, Ethiopia, 2017.

Methods: Cross-sectional facility based study was conducted using both quantitative and qualitative research methods in three sub cities of Addis Ababa using selected randomly from purposively drawn supermarkets, which were implemented by 15 in-depth interviews from consumers and purchasing managers in Addis Ababa. The collected data was coded and entered to Epi-Info version 3.5.1 and export to SPSS version 22 for analysis; binary and multiple logistic regression analysis were done, and when P < 0.05 was declared statistically significant.

Results: The proportion of consumers who were aware and practiced on the Basic Packaged Food Labeling Information was 33.3% in a multivariate analysis Having medical problem Education, being familiar with the food product (brand loyalty) having children looking at the expire date were significantly associated with reading labels.

Conclusions: The finding of this study showed that one in three consumers were aware and practiced on the Basic Packaged Food Labeling Information however the rising of NCD's need to take action and work on those who have no or poor awareness In order to bring positive change, FMHACA in collaboration with other stakeholders need to address the issues.

Keywords: *Packed Food Labels; Consumers; Non-Communicable Diseases (NCD)*

Introduction

As the global and regional burden of disease caused by nutrition-related risk factors, substantial for a supportive environments that help people make healthy food choices, are important in promoting good nutrition [1]. Nutrition labels and claims on food packaging provide important information to consumers at point of purchase and therefore have an important potential role in promoting healthy food choices and eating behaviors [1].

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Changes in social and economic environment, lifestyle, the working patterns, the increased employment of women, the lack of time and the income growth have resulted in an increase in consumption of packed food in the world and this leads to the risk of Non-Communicable Disease among consumers [2]. Non-Communicable Disease (NCD) is the leading cause of disease worldwide and in Ethiopia, it accounts for 30% of diseases [3]. Thus, increasing their risk of dying from such conditions could be minimized by healthy eating habits in addition to positive life style and exercise and reduce the prevalence of NCDs.

Studies have observed that increasing diet related diseases are linked to high consumption of packaged foods and inadequate awareness about nutrition labels as most packaged foods are loaded with high sugar and high fat whereas consumers are ill informed on the use of nutrition labels [4]. A food label may be described as any tag, brand, mark; pictorial or other descriptive matter accompanies the food, attached to a container of food or is displayed near the food, including that for the purpose of promoting its sale or disposal. Moreover, there is robust evidence that dietary factors are related to the development of chronic diseases such as heart disease, stroke and diabetes. Food labels are a source of information and most often, the first means for directly connecting with a consumer however; its potential is not always well-exploited [5].

Reports by the World Health Organization showed that dietary factors account for approximately 30% of cancers in most industrialized countries stressing the importance of food nutrients in the growth and maintenance of good health in humans. Due in part to increasing diet related health problems nutritional labeling has been regarded as an important topic mainly because it can provide consumers with nutritional information that can be used to make informed and healthier food choices [6].

This necessitates consumers to be enlightening with the knowledge and ability to read, understand and interpret food labeling and use such information in decision making during purchase of packaged foods. An important way to get people to make healthy food choices would be to educate them to read and use food labels [7,8]. Nutrition information on food labels is complex and does not always live up to its potential to communicate effectively [9]. Unhealthy food choices have been blamed partially for the worldwide increase in obesity - a relationship between reading food labels, and health awareness and a healthy lifestyle confirms that food labels are a useful source of information through which a consumer's food choices can be shaped [10].

In developing countries, there is a general rise in urban living and street food has become an important component of the daily diet. In Ethiopia, as well food-processing sector is rapidly increasing. As a result, outbreaks associated with food prepared outside the home are increasing in many regions. At a national level however, both food shortage and lack of appropriate food safety assurance systems are problems that have become obstacles to the Ethiopian economic development and public health safety. Effective food safety systems are vital to maintain consumer confidence in the food system and to provide a sound regulatory foundation for domestic and international trade in food, which supports economic development [11-13].

Moreover, there is no research done to document the existing problem and little is known about the magnitude of the problem in Ethiopia. Thus, this might unknowingly predispose people into buying expired food items, foods with undesired ingredients and or untoward health consequences. More importantly the study took place in Addis Ababa city in which large parts of economically organized families are located and, there are concentration of governmental, non-governmental and private institutions characterized by many economic and social activities including shopping for food items in food selling outlets and the various supermarkets. Regardless of disparities in living standards, large numbers of people have access to the city center during working hours and are more likely to obtain their domestic requirements (including pre-packaged foods) from shops and supermarkets available in their vicinity where and the is increasing from time to time This motivates the researcher to work on and going to address the level of awareness, use of nutrition labels on packaged foods, and identify factors that are associated with it which will help to make informed decision. More importantly, it creates awareness among consumers and help in the prevention of NCDs and other diseases caused by unhealthy dietary practices. In addition, the study will provide baseline information for further research.

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Methods

The study was conducted in Addis Ababa, capital city of Ethiopia, consumers of supermarkets. Based on the population projection of Ethiopia surveyed from 2014 to 2017, Addis Ababa has estimated to have a total population of 3,433,999 in Addis Ababa (CSA). There are 1172 registered wholesale and retail packaged food selling outlets including well-branded Hypermarkets, Supermarkets and Mini markets, which currently registered by the Addis Ababa City Trade and Industry Bureau [14]. Only Supermarkets were selected in this study because of all classes of the populations are assumed to purchase from it and appears to be representative.

A facility based cross sectional study involved both quantitative and qualitative methods were undertaken from May to August 2017. The quantitative data were used to assess the level of awareness among consumers. In depth interview were used to obtain the qualitative data in order to complement the data that were generated by the quantitative survey and to elaborate issues that were not clearly reflected by the quantitative data. Consumers' age above 18 yrs of Addis Ababa were considered as the source population. The study populations were all consumers above 18yrs living in the ten sub cities.

The sample size was calculated using single population proportion formula, based on the assumption of the prevalence of proportion 0.5, since there is no similar study done in Addis Ababa, using a maximum allowable error of 5% and at 95% confidence level ($z\alpha/2$ = 1.96); the calculated sample size was 420 considering an estimated design effect of 1.5 the final sample size was to be 630 consumers for the quantitative method.

Three sub cities from the ten sub cities were purposively selected considering their high number of supermarkets found. Then 30% of the total supermarkets were selected proportionally from the three sub-cities to get the required supermarket and the number of customers were also selected proportionally using population proportion formula (PPS=n/N*SS) where n = Number of supermarket, N = the sum supermarkets in three sub cities and SS is total number of sample sizes. Multi stage sampling was employed. In order to get the study participants, clients were selected consecutively during the visit to the supermarkets. Only eligible study subject were interviewed.

Structured questionnaire was prepared and distributed for data collection in order to get the necessary information. The questionnaire was initially prepared in English then translated in to Amharic, and the Amharic version was translated again to English to check for any inconsistencies or distortion.

Before conducting the main study, pre-test on 10% (63) consumers in Arada sub-city was done to see the accuracy of responses, language clarity and appropriateness, estimate the time required and the necessary amendment. Accordingly, minor corrections regarding language clarity and data collection tool were incorporated into the study tool.

A team of ten data collectors who have diploma in health related subjects and have an experience of working similar surveys, fluent speaker of Amharic language were recruited. The questionnaire had four sections; (1) Socio-demography (2) Health related information (3) Food and nutrition label awareness and practice (4) Factors associated with food and nutrition label practice.

To assess the problem with the consumers' awareness and understanding of the different information items on food products, face-to-face in-depth interviews with 15 consumers and purchasing managers were conducted. Each participant was asked to explain the information on the labels and their reaction to them. An open-ended approach was used in interviews. Each interview lasted around 30 - 45 minutes with the consent of participants.

The data were collected using a validated questionnaire, data collectors and supervisors were trained for two days on interviewing techniques, contents of questionnaires, disciplines the right of the respondents during data collection, and approach to the interviewees. Field supervisors together with the principal investigator ensured the quality of the data, through continuous spot-checking of the interviewers, by checking the completed questionnaire for missed response and for inconsistent information. Then questionnaires were cleaned and coded for computer data entry. Daily discussions was held on how to minimize and if possible to eliminate possible error.

After the data collection was completed, the data was categorized, coded on a prepared coding sheet and entered using EPI info version 3.5.1, cleaned and analyzed using SPSS 22 version statistical package. Frequencies and percentage of all variables were determined.

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Bivariate logistic regression analysis was used to assess the degree of association between dependent and independent variables and test significance of the association. In addition, variables which had significant association with the outcome variable were entered into multivariate analysis model, to identify the important determinants and used to control for possible confounding effects. A *P*< 0.05 was declared statistically significant. Qualitative interview was audio taped, transcribed verbatim, translated to English and data analysis was done based on the content analysis coding was developed as part of data analysis.

Result

Six hundred thirty subjects with a response rate of 100% were participated in the study.

Socio-demographic characteristics

More than half of study participants (56.3%) were women with the mean age of 32.9 (SD ± 11.39) years; less than half (44.8%) of them were between the age group of 25 and 34 years. Among those study participants, 48.3% of them were married, near two third of them (65.1%) were employed and slightly over a quarter (26.2%) had degree level of education (Table 1).

Variable	Options	Awareness and practice on Food label reading		COR with 95% CI	AOR with 95% CI
		Yes	No		
Age category	Young	123 (19.5%)	291 (46.2%)	.627 (.444, .884)	0.737 (.458,1.183)
	Old	87 (13.8%)	129 (20.5%)	1	
Education	Educated	208 (36.4)	364 (63.6)	16.000 (3.86566.239)	8.655 (1.990, 37.638)**
	Uneducated	2 (3.4)	56 (96.6)	1	
Occupation	Employed	167 (40.7)	243 (59.31)	2.829 (1.921, 4.166)	1.509 (0.929, 2.417)
	Unemployed	43 (19.5)	177 (80.5)	1	
Marital status	Married	47 (27)	127 (73)	1.856 (.512, 6.725)	1.778 (.442, 7.159)
	Single	163 (35.7)	293 (64.3)	1	
Ability to Read terms	Scientific	148 (3.4)	339 (69.6)	.570 (.389, .837)	.870 (.541, 1.400)
	Non-scientific	62 (43.4)	81 (56.6)	1	
Brand loyalty	Practice of using Existing product	108 (23.8)	346 (76.2)	.226 (.157, .328)	0.284 (.186, .435)**
	New product	102 (58)	74 (42)	1	
Health Condition	Unwell	121 (39.8)	183 (60.2)	1.761 (1.260, 2.461)	1.589 (1.032, 2.446)**
	Well	89 (27.3)	237 (72.7)	1	
Having children	Yes	158 (41.1)	226 (58.9)	2.720 (1.856, 3.988)	1.689 (1.092, 2.613)**
	No	46 (20.4)	179 (79.6)	1	
Looking at the expire date	Yes	159 (43.1)	210 (56.9)	2.720 (1.856,3.988)	2.406 (1.556, 3.719)**
	No	51 (19.5)	210 (80.5)	1	

***Table 1:** Factors associated with awareness of the basic packaged food labeling information, Addis Ababa, Ethiopia, 2017.*
* P-value < 0.025 in the bivariate analysis ** P-value < 0.05 in the multivariate analysis.

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Participants level of awareness and practice on the basic packed food labeling information

Six hundred thirty participants were interviewed to determine their level of awareness and practice on the basic packed food labeling information. Among them, 255 (40.5%) participants answered that they bought packed foods weekly and 102 (16.2%) of them bought very rarely. Over half, 369 (58.6%), of the respondents knew that there is labeling on packed foods and over one-third, 238 (37.8%), of the shoppers check food labeling information accidentally without any intent. However, majority, 242 (38.4%), of the consumers focused on expiry date. From the total sample, 18 (2.9%) of respondents reported they never used nutrition labels, 402 (63.8%) reported they sometimes used the nutrition label and 210 (33.3%) reported they often used the nutrition label. On the qualitative finding, majority of the respondents perceived as they have "better understanding" about labels, however almost the same number of respondents have said they have a "low" level of understanding.

"I have better understanding about labels because I want to avoid any risk arising from labels" (35 year-old Female, Bole).

Another 28 years unmarried young lady mentioned "I don't have deep knowledge about the importance of such labels other than reading the expiry date".

A 42 years old supermarket manager also mentioned that "Majority of the people do not have full understanding about the use and benefits of labels or the purpose the labels serve in general".

Use of the various components of food labels among participants

Utilization of various components of food labels among participants who reported that they read food labels were the expiration date 242 (38.4%) and nutrition label information 36 (5.7%) and the least used was net content 10 (1.6%). Other major components of food labels that respondents usually used were instruction for use 68 (10.8%), and manufacturing date 110 (17.4%). Use of the various components of food label information among respondents is shown in figure 1.
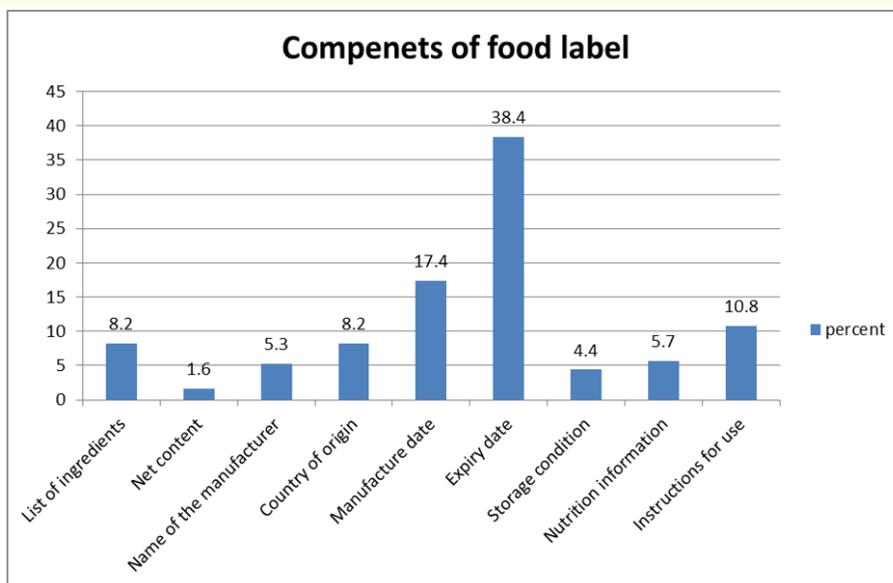

Figure 1: Components of food label most participants likely to use, Addis Ababa, 2017.

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"I mostly check expiry date and I don't make detail observation about other label information" (42 year-old Female, Kirkos).

We regularly check expiry date of the packed foods at shop level. We assume detail labeling check would be conducted at store. We further check cleanness and whether the package is sealed or not" (Supermarket Manager, Nifas Silk Lafto).

"We mainly focus on checking the expiry date and the packaging condition in assumption that their suppliers would do proper labeling" (Supermarket Supervisor, Bole).

"We check detail labels, expiry dates and price of the product as well as its shelf life. If these things are not fulfilled we don't accept the product" (Supermarket Manager, Kirkos).

"I mostly check expiry date and I don't make detail observation about other labels" (Female, Consumer, Kirkos).

"I reads most of the labels but pass on those I don't understand" (Male, Consumer, Bole).

Factors influencing consumers purchasing of packed foods without reading labels

The research finds out multiple factors affecting consumers purchasing of packed foods without reading labels. There were different situations in which respondents purchase packaged foods without reading labels such as purchase of familiar foods (brand loyalty), 338 (53.7%); due to time constraints or being in rush/hurry, 135 (21.4%); buy the food from observing that many people use the product, 89 (14.1%); lack of trust on the information printed on the label, 36 (5.7%); buy by the word of mouth based on information they heard about the product from family, friends or advertisements, 12 (1.9%); buy the packed food if the product is new, 11 (1.7%) and few participants mentioned difficulty of reading 9 (1.4%).

"I find no enough time to read everything written on the packed products. I don't regularly check the labels because I buy most of the products in rush" (36 year-old, Female, Nifas Silk Lafto).

"I am not sure if there is a body that would inspect the packed foods and I assume these manufacturers just print the labels all at a time" (44 year-old, Male, Nifas Silk Lafto).

"I don't usually buy new product that is why I take myself as not good at reading label information and I purchase the same products" (41 year-old, Male, Bole).

Frequencies of pre-existing health conditions among the shoppers

The prevalence of pre-existing health conditions reported by the respondents who participated in this study is summarized in table. The most commonly reported pre-existing health conditions among the shoppers were gastritis 41 (23.6%), DM 38 (21.1%), HTN 28 (16%), and Joint and Renal problem each 17 (9.8%) respectively. The least common current health conditions were allergy and HBV, both in 1 (0.6%).

"Packed products mostly contain many chemical compositions and I consider that would affect my health" (35 year-old, Female, Bole).

"There is no packed food that I don't check labels because I am caution about my health" (47 year-old, Male, Kirkos).

"I have health problem. There are food types that I am restricted to eat. That is why I am trying to understand the content on the prepacked foods and follow the consumption procedures" (Female, Consumer, Kirkos).

"I regularly buy packed foods for my new born baby and I read labels because I want to be careful of my child's health" (30 year-old, Female, Nifas-Silk Lafto).

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Difficulties encountered by respondents in reading and using food-labeling information

Participants of this study reported that they encountered a number of difficulties in the course of reading packed food label information. These included use of unfamiliar languages, small font sizes, use of scientific/technical language, lack of awareness on nutrition label use, or they have no guideline to crosscheck the label information.
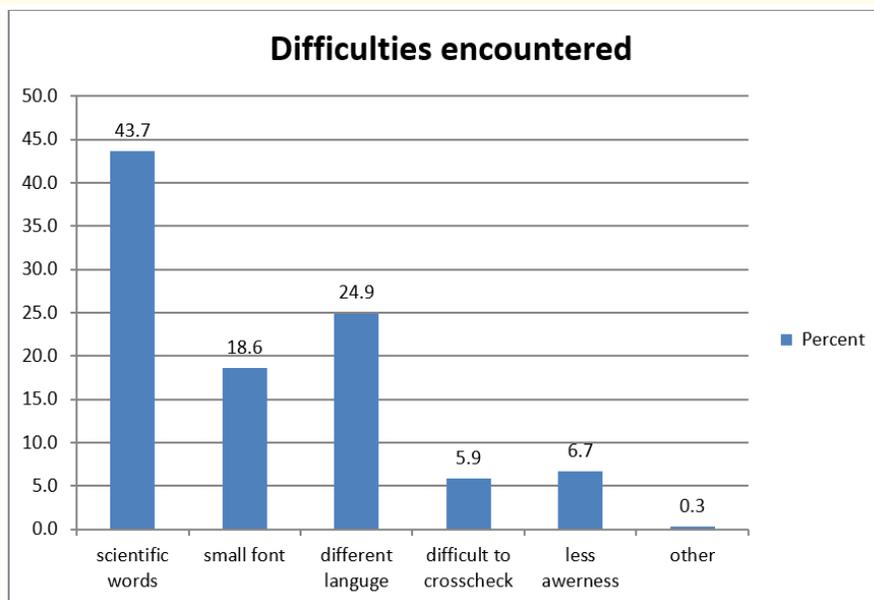

Figure 2

"The problem we encounter most of the time is that the labels are not properly imprinted or other details showing ingredients would not be properly labeled" (Supermarket Manager, Kirkos).

"There are unclear or small labels. They are written in different languages. I even find Chinese and Italian languages" (29 year-old, Female, Bole).

Discussion

This study assessed level of awareness and practice of using nutrition labels on packaged foods among shoppers and factors, which influence them in Addis Ababa. Accordingly, the level of reading food labeling before purchase of packaged foods was one in three indicating that it is low and reflect the understanding and use of the information in purchasing packaged foods was not good enough and possibly attributed by lack of awareness of the benefits of label use. In Ethiopia though there is no previous study on the use of nutritional label, one can imagine that the figure is very low compared to other studies done, Ghana 81.9% [4] in the UAE 98.8% [17], 70% in Lesotho [15] which documented high level of nutrition labels use. This might be due to the market system, educational level, and globalization. On the other hand, similar low level of awareness on food labeling was reported by Washi [16] in the UAE and Samson [7] in Tanzania.

In this study, educated respondents read labels more frequently compared to those who were not, indicating that education level was influence their reading of food labels and implies lack of education as a barrier. Similar finding is reported by Nayga [17] that people with at least some college education have a higher Healthy Eating Index than people with no college education. Other study results are also concordant with the present findings [9,18-20] in South Africa, Mahgoub [14] in Lesotho. Opposing to this study, in the UAE there was

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no statistically significant relationship between level of education and level of awareness on food labeling among food consumers was reported by Washi [16]. The above assertion was also reflected in the qualitative findings.

In this study, respondents have been habitually consuming certain foods without relying on food labels because of brand loyalty and the finding is similar to Jacob., *et al.* and Syed., *et al.* [19,20] who also concluded that people may also buy out of habit because they don't have time to read detailed label information. The majority of the consumers use label information, occasionally probably because consumers assumed they are familiar to the product similar to Osei., *et al.* [21] who found consumers reported reading food labels occasionally on initial purchase. Product experience strongly influences label use and the finding is coherent with Sabbe., *et al* [22]. This shows that respondents buy food items due to the loyalty to the brand and really like the taste of a processed/packaged food product, in spite of its inferior healthy content. The same experience was mentioned by the qualitative findings as well.

Another interesting finding of this study was that many of the respondents appeared to be concerned only about the shelf life of the commodity and the finding is consistent with Osei., *et al.* [23], Sabbe., *et al.* [24] also reported similar findings where he reported that that consumers commonly use expiry date as an indication of freshness, shelf life and food safety across a range of foods. Various study results concurred with the present findings [7,19,20,22] and reported that respondents' paid great attention on expiry dates than the component of the product to avoid risks that might appear from consuming expired foods. The same experience was mentioned by the qualitative findings as well.

In addition to above, the study found that health consciousness is a significant factor for consumers to read food labels. This is probably due to healthy dietary practices positively affects nutritional label because consumers with health problem may value nutrition labels to make healthier dietary choices to control their conditions. The present finding is in agreement with other studies which reported consumers with a special interest or positive attitude to diet and health were more likely practicing nutrition label reading [9,20,23] and also supported by Lewis., *et al*. [24] who documented that nutrition awareness and nutritional label use was higher among people with chronic diseases such as hypertension, hypercholesterolemia, diabetes, overweight and heart disease as compared to those without these chronic diseases. The same experience was mentioned by the qualitative findings as well.

Moreover, finding showed consumers who have children give emphasis and read labels frequently than who did not have. This shows that respondents are more likely to have responsibility not only for their health but also for the health of their children as well. Similar to the present findings, Washi [16] reported that households with children used nutrition labels more often than households without children. Other studies also reported the same finding by Aydin B and Syed H., *et al* [17,20]. Those who have more children under the age of 18 were read labels more frequently. Similarly, findings were reported by the respondents during the in depth interview.

In this study, less than half of the respondents bought packaged food weekly, and others monthly or daily indicating that majority of the consumers are using packed products though the frequency is less compared to the western affluent countries. In most cases, consumers are influenced to purchase packaged foods since they perceive the product is of good quality and have many options. Contrary with the present finding, Osei., *et al.* [21] reported consumers to be influenced to purchase canned food by advertisement (31.6%) and price (31.2%).

The present study reported a number of difficulties to prevail in the course of reading food labeling information. These includes difficulty to understand the scientific/technical language in less than half, small font sizes, different language, routine/purchasing of familiar foods and lack of understanding of the importance of food labels were mentioned as a barrier accounted for 56.3% of the response. Similar findings with regard to font size and language were reported in South Africa by Jacobs., *et al* [19]. In contradiction, Mahgoub [15] found out that majority (59.0%) of consumers" in Lesotho understand food label very well. The finding also found out that size really does not matter to consumers to see labels similar to research conducted by Alice [25] found out that size really does not matter to consumers.

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In this study, both income and gender did not influence the practice of reading nutrition information on food products. This is similar to finding of Jacobs SA., *et al.* [19] reported in South Africa, which they show that no relationship to exist between gender and reading in reading/using food labeling information. In this study, age, married respondents, employed read more than their counterparts indicating the importance of younger age, marriage and work related factors to influence nutrition label use. Younger age people were reading food labels more frequently than older this is probably younger's are more conscious about their health than the elderly was. Nevertheless, this observation is different from what has been reported in Consumers' knowledge [8] which stated that older adults use the nutrition information to guide their choices during food purchasing than the younger consumers.

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