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ANALYSIS OF NUTRITIONAL LABEL USE ON PACKAGED FOODS AMONG URBAN HOMEMAKERS IN OGUN STATE, NIGERIA

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ABSTRACT

This paper presents the type of food label information used by homemakers in Abeokuta while purchasing packaged foods and the socio-economic characteristics influencing its usage. Structured questionnaire was used to elicit information from 149 homemakers drawn by multi-stage sampling techniques. The study found that majority (87.20%) of the homemakers were females with mean age of 40.2 years. About two-third (65.40%) of the homemakers considered information on food labels before purchasing packaged foods. The most commonly considered food label information was found to be the NAFDAC (National Agency for Food and Drug Administration and Control) number (63.8%), followed by the expiry date (59.1%), brand name (57%), country of manufacture (51.7%) and nutritional facts (51.0%). Results from logit regression models showed that sex, education, marital status, occupation, income and health status were the key factors that significantly ($p < 0.05$) influenced nutritional label use.

Keywords: Food label, homemakers, logit regression, packaged foods.

INTRODUCTION

Food is a basic necessity of life. Its importance at the household level is indicated by the fact that it is a basic means of sustenance, the adequacy of which (in quantity and quality) is a key requirement for healthy and productive life. The provision of adequate and balanced food (nutrition) is necessary for the survival of the society in the sense that it is essential for the maintenance of good health and successful implementation of development plans (Olorunfemi *et al.*, 2009). A healthy and nutritionally well-fed population is indispensable for eco-

nomical growth and development. Abdullahi and Aubert (2004) posited that the sufficiency of input of human resources in the economic growth and development of a nation invariably depends on adequacy of food and body nutrients. According to Menon *et al.*, (2004), nutritional status affects the capacity to learn, which in turn determines productivity and economic growth. In the last few years, there has been an increase in the concern regarding the relationship between the type of food that an individual consumes and diseases associated with excess weight, obesity, sedentary life and lack

of physical activity. Consequently, the global consumer shows a high interest in the food they purchase. This attitude led food enterprises to offer regulated information on product characteristics, its processing and where they come from. Food labelling therefore becomes essential as an information source. Its use has gained prominence in many countries as regulatory tool to inform consumers and influence market for food quality (Drichoutis *et al.*, 2006). Johnsen (1993) opined that as the world agricultural system moves ever closer to a market based economy, providers of agricultural commodities must become increasingly attentive to specific consumer demand. Today's consumer expects food to meet an ever increasing standard of quality. This perception of quality includes food that has visual appeal, good flavour, good nutritional quality, freedom from bio toxins, proper labelling and handling, prevention from exposure to environmental contaminants among other quality indicators. In addition, new technologies, scientific discoveries, information about linkages between diet and health and the mass communication of this knowledge to consumers had led to increased demand for higher quality foods (Caswell and Modjuszka, 1996). Labelling refers to the paper or plastic attached to a container to carry product information. Such information include product name through which it can be identified, country of manufacture, expiry date (best use before), net content, ingredient lists in order of their prominence weights, NAFDAC number, nutritional fact panel, health claim and so on. The food label was designed to assist people to make purchase decision and access food information because by reading food label, consumers can compare the nutrient content of similar foods, see how foods fit into their overall

diets, and understand the relationship between certain diet related diseases. Effective and efficient information on food labels is important for all the stakeholders in the food chain because it helps in reducing information asymmetry and providing consumers with information that can actively help them in making informed choices and stimulate healthier eating and also act as an important element in ensuring their right to be properly and correctly informed. In an effort to make nutrition information available to consumers in Nigeria, the National Agency for Food and Drug Administration and Control (NAFDAC) was established by Decree No 15 of 1993. NAFDAC is a parastatal of the Federal Ministry of Health in Nigeria with the mandate to regulate and control quality standards for foods, drugs, cosmetics, medical devices, chemicals, detergents and packaged water imported, manufactured locally and distributed in Nigeria. It was established to protect and promote public health by ensuring the wholesomeness, quality and safety of food and drugs consumed in Nigeria. Many studies have examined the socio-demographic determinants of food label use in the United States, and reported that age, gender and education are important factors. In addition, women and more educated individuals as well as those with special diet concerns have been identified in the literature as the major users of nutritional label. The influence of other factors such as income, employment status and household size is less clear as both positive and negative effects have been found in literature (Drichoutis *et al.*, 2006). Hawkes (2004) also examined how label use affects food purchases and overall diet quality and found that the more a consumer feels that his health is likely to suffer in the future, the greater the perceived health risk and the more the need for nutritional label use. Kim *et al.*, (2001) also found out

that health status affect food label use and also more education lead to higher levels of information search and that food information search is positively associated with education. More specifically, employment status (Nayga, 2000) and income (Kim *et al.*, 2001) have been found to affect food label use, therefore occupation and income were included in the model to capture time pressure effect. Label use as reported by Todd *et al.*, (2008) was found to be a function of age, gender, education, employment status, current health status, knowledge about nutrition and health, as well as other factors that affect an individual's value of time, rate of discount of future health and ability to process and use nutrition information to make healthful food choices. In developing countries such as Nigeria, little or no information is available on the extent of use of food labels by consumers and its determinants. Therefore, this study aimed at assessing wholistically the label use practices among homemakers in Nigeria using Abeokuta as a case study. The specific objectives were to determine (1) the percentage of homemakers who use food labels when purchasing packaged foods, (2) the food label information used most, and (3) the extent to which socioeconomic factors are associated with food label use.

METHODOLOGY

Study area

The study was carried out within Abeokuta metropolis, the capital city of Ogun State. Ogun State was created on the 3rd February 1976. Abeokuta happens to be the largest urban centre in the state, is situated 100 kilometers north of Lagos. Ogun State lies within the Tropics of latitude 3° 30' N – 4° 30' N and longitude 6° 30' E – 7° 30' E with a total land area of 16,409.26 sq.km (Ogun State Annual report, 2000). It is bounded in

the North by Oyo and Osun States, in the South by Lagos State, in the East by Ondo State and in the West by Republic of Benin (Cotonou). The state has a population of 3,728,098 people (Ogun State Annual Report, 2000). The city has both rural and urban characteristics. Most of the inhabitants of the town derive their bread from the civil service. Other occupations are transportation, textile and fabrication and petty trading.

Sampling technique and sampling size

A multi-stage sampling technique was used in selecting 149 homemakers from the study area. Stage one involves the selection of four out of twenty local government areas in Ogun state (Abeokuta North, Abeokuta South, Odeda and Obafemi-Owode local government areas). Stage two involves the selection of two communities each from the four local government areas while the last stage involved the random sampling of eighteen households each from each communities from where the homemakers from each households were interviewed. Structured questionnaire was administered to elicit information from the respondents whether they make use of food label when making purchases of packaged foods and if so what labeling attributes do they use most frequently. In addition to these responses, interviewer also collected data on respondents' socio-economic characteristics (age, education, gender, marital status, household income, religion and occupation types). The study used logit regression to determine whether food label use is independent of respondents' socio-economic characteristics.

ANALYTICAL TECHNIQUE

The descriptive statistics and Logit regression procedure were used in analyzing the data collected. Following Gujarati (1998) the Logit model is specified as follows:

$$Z_i = \log [P_i/(1-P_i)] = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \dots + \beta_n X_{ni} + \epsilon$$

Where:

$i = 1, 2, \dots, n$ are observations

$Z_i =$ the unobserved index level or the log odds of choice for the i^{th} observation

$\beta =$ the parameters to be estimated

$X_n =$ the n^{th} explanatory variable for the i^{th} observation.

$\epsilon =$ the error or disturbance term.

Prob = 1 if food label information was considered when purchasing packaged foods and 0 otherwise.

$\beta_i =$ coefficients,

$X_i =$ independent variables, and $\epsilon_i =$ error term.

The independent variables, which describe the socioeconomic characteristics of respondents, are described as follows:

$$Y = f(X_1, X_2, X_3, \dots, U)$$

Where

$Y =$ probability of using label information (probability = 1, otherwise = 0,)

$X_1 =$ Age in years

$X_2 =$ Reference person is female = 1

$X_3 =$ Educational level in years

$X_4 =$ Reference person is Once married

$X_5 =$ Reference person is Single

$X_6 =$ Reference person is Civil servant

$X_7 =$ Reference person is Self employed

$X_8 =$ Reference person is Retired civil servant

$X_9 =$ Reference person is (Others)

$X_{10} =$ Reference person is Diabetic

$X_{11} =$ Reference person is Hypertensive

$X_{12} =$ Reference person has Ulcer

$X_{13} =$ Reference person is Obese

$X_{14} =$ Household income in N/month

$X_{15} =$ Household size in number

RESULT AND DISCUSSION

Descriptive statistics

From Table 1, 51 percent of the respondents were between 30-39 years of age, 87

percent were women, 60 percent had tertiary education, 71 percent were civil servants, 76 percent were Christians and 27 percent of the household had incomes between 31,000 – 60,000 on a monthly basis.

Table 2 shows the levels of label use and the labeling attributes used mostly frequently by respondents. Based on these results, 56 percent of the respondents used labels when making their purchase decisions. Among the most frequently used attributes were brand names (57 percent), country of manufacture (52 percent), expiry date (59 percent), NAF-DAC number (64 percent) and nutritional facts (51 percent). Some of the reasons for using food label information include health need (46 percent), past food borne illness (24 percent) and expert advice (30 percent).

Logit regression

The logit regression analysis as shown in Table 3 was used to identify the socioeconomic factors influencing the usage of nutritional information on the packaged products. The results indicated that the coefficient education had a positive relationship with label use and was significant at 1%. This implies that the likelihood of using food label information on packaged foods among educated homemakers is more compared to their counter parts, and also, the more the probability for information search and the better the understanding of reading and using food label. This finding is in conformity with the findings of Kim *et al.*, (2001). In addition, the singles made use of nutritional information than the once married, though they were both significant. Also the retired civil servants considered nutritional fact panel probably due to the old age nutritional requirements.

Sex was a significant variable and had a positive relationship with food label use. This

may be due to the fact women being more active in deciding and preparing what their families eat and even from the study, they do much of the purchases than males, thus they are more likely to use food labels than males.

All the health explanatory variables included in the model were significant with the expected signs. This implies that consumers

who are with one health challenge or the other tend to be more careful on what they eat.

Income had a sign consistent with the findings of other related studies cited earlier. This means that the more the income, the more the consumers demonstrate a great deal of consciousness to what they eat.

Table 1: Socio-economic Characteristics of Survey Respondents

Socio-economic Characteristics	Frequency	Percentage
AGE (Years)		
Less 30	35	23.5
30 – 39	76	51.0
40 – 49	23	15.4
50 – 59	12	8.1
Above 60	3	2.0
Total	149	100
GENDER		
Male	19	12.8
Female	130	87.2
EDUCATION		
Non-formal	4	2.7
Primary	4	2.7
Secondary	51	34.2
Tertiary	90	60.4
OCCUPATION		
Civil servant	105	70.5
Self employed	31	20.8
Retired civil servant	6	4.0
Artisans	7	4.7
RELIGION		
Christianity	113	75.8
Islam	36	24.2
HOUSEHOLD SIZE		
1 – 4	112	75.7
5 – 8	33	22.5
> 9	4	2.8
HOUSEHOLD INCOME		
< N30,000	34	22.8
N31,000 - N60,000	40	26.8
N61,000 - N90,000	20	13.5
N91,000 - N120,000	25	16.8
> N120,000	30	20.1

Source: Computed from Field Survey Data, 2009.

Table 2: Distribution of homemakers by food label use

Response Categories LABELS	Frequency	Percentages
Users	84	56.4
Non-Users	65	43.6
LABEL INFORMATION		
Brand name	85	57.0
Country of manufacture	77	51.7
NAFDAC Number	95	63.8
Nutrition fact panel	76	51.0
REASONS		
Health need	39	46.4
Past food-borne illness	20	23.8
Expert advice	25	29.8

Source: Computed from Field Survey Data, 2009.

Table 3 : Maximum Likelihood Estimate of the Logit Model

VARIABLE	VARIABLE SYMBOL	COEFFICIENT	Z- VALUE
Intercept			
Age	X ₁	0.008	0.210
Reference person is female=1	X ₂	0.650 *	1.840
Education	X ₃	0.386***	5.594
Reference person is once married	X ₄	-4.040***	-3.010
Reference person is single	X ₅	1.179***	3.220
Reference person is civil servant	X ₆	0.150	0.342
Reference person is self-employed	X ₇	0.070	0.244
Reference person is rtd civil servant	X ₈	4.255***	3.033
Reference person is (Others)	X ₉	0.256	0.563
Reference person is hypertensive	X ₁₀	1.227*	1.845
Reference person is diabetic	X ₁₁	1.937***	3.311
Reference person had ulcer	X ₁₂	0.815	0.006
Reference person is obese	X ₁₃	1.063***	3.824
Household income	X ₁₄	0.024***	2.583
Household size	X ₁₅	- 0.090	-1.184
Chi-square value	19.612		
Log-Likelihood	610.257		
Pseudo R ²	0.280		
***	Significant at 1%		
**	Significant at 5%		
*	Significant at 10%		

CONCLUSION

The study's primary goal was to examine whether consumers in the south west Nigeria were using the nutritional facts label to make healthier food choices. The specific objectives were to determine (1) the percentage of homemakers who use food labels when purchasing packaged foods, (2) the food label information used most, and (3) the extent to which socioeconomic factors are associated with food label use. From the results, (56.4%) of the respondents were label users. In general, label users assessed expiry date on packaged foods than other information on food label such as brand name, country of manufacture, NAFDAC number and Nutritional facts. Other information sources that influence food label use among homemakers include Television, Magazine and medical personnel. The reasons for using food label on packaged foods include past food-borne illness and health need.

The logit regression model was used to determine factors affecting the usage of nutritional fact information on packaged foods among homemakers. The result showed that sex, education, occupation, marital status, income and health status were factors affecting specific food label information use on the packaged foods and were significant at different levels. The study's results suggest that there is the need for policy makers to increase the success of consumer education programmes to capture non- food label users in order for them to be properly informed and also government should intensify effort more on education for people in order to be aware of food-health related issues considering the importance of education to knowledge.

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