



Degree of use of food labels by consumers in Trinidad and Tobago

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ABSTRACT

Food labels are not only an essential component of a comprehensive public health and nutrition strategy, but also marketing. Food labels help consumers to make informed decisions about what they chose to consume. Food labels help consumers to make informed decisions about what they chose to consume. This study was conducted among the population of twin-island Caribbean nation, Republic of Trinidad and Tobago with a sample of 320. The objectives of the study are: to examine the extent to which consumers use various components of the food label; and to study the influence of socio-demographic and health related factors on the degree of use of nutrition labels. The study found that the aggregate degree of importance attributed to food labels far outweighed their actual usage. Of the explanatory variables included in the model to determine the influence on the degree of usage of food labels, six explanatory variables, viz., (i) diabetes; (ii) allergies; (iii) gender-male; (iv) level of schooling; (v) fast food consumption and (vi) fiber consumption had significant impact on the use of food label information. Although Trinidadians may have an appreciation for the information provided on food labels, they lack the incentive to actually incorporate it in their daily lives which could be achieved through proper health education campaigns.

Keywords: Food label, Degree of use, Consumers, Trinidad and Tobago

Food labels carry useful information that help consumers to make good choices about food. The food labels indicate if the food contains an additive that one may wish to avoid, as well as facilitate consumers to compare the nutrient profile of similar products and choose the one that suits their needs. Accurate, easy-to-read, and scientifically valid nutrition and health information on food labels is an essential component of a comprehensive public health strategy to help consumers improve their diets and reduce their risk of diet-related illness. Improved food labeling could provide consumers with easy-to-read nutrition and ingredient information that they can use to reduce their risk of the leading causes of death today, including heart attack, stroke, certain forms of cancer, and diabetes (Silverglade and Heller, 2010).

Food labels, such as nutrition information and USDA Organic labels may help consumers make more informed purchases that align with their values and nutritional needs. Food labels can also be used as marketing tools, and may convey misleading information. Food labels, when not misleading, can educate consumers about the origins of their food, the practices used to produce it, and its nutritional content. The information on labels may help consumers assess the health, environmental and social outcomes of their purchases, empowering them to “vote with their forks” or make informed purchasing choices that more closely align with their values. For example, labels have proven effective in promoting organic farming practices and more stable livelihoods for some farmers (Howard and Allen, 2010).

Food product labeling, as a policy tool for ensuring the provision of nutrition and health information to the consumer, has gained importance in the recent past across the globe (Kim, Nayga and Capps 2001). Trends toward healthier and wellness food has also led to consumer demand for “more detailed, accurate, and accessible” nutritional information on the packaged food product (Abbott 1997). As a result, regulatory bodies such as the U.S. Food and Drug Administration have made nutrition labels a requirement for packaged food products with the objective of providing consumers with consistent, understandable and reliable information so that they can make informed decisions about what they chose to consume. Although the Chemistry Food and Drugs Division of the Ministry of Health issued a detailed order about the Basic food labeling requirements, within Trinidad and Tobago, laws with regard to labeling have not been heavily enforced. However, as food products today compete in a globalized market place nutrition labeling has become common place on locally produced packaged foods in order to match international standards. Such regulatory pressures coupled with increasing consumer demand for information has placed emphasis on the provision of effective food labels.

Understanding which segments of society have a greater or lesser appreciation for food labels can greatly improve the marketing efficiency and food distribution. Similarly, from a health perspective, studies have shown that consumers that read food labels weigh relatively less than consumers that practice food label reading less actively (Neuhoiser, 1999). This makes the food label a tool for potentially curbing the climbing obesity rates of societies across the globe. Therefore, the extent to which consumers actually consider food labels should be established from a marketing and health education standpoint. Yet, in the context of emerging economies such as Trinidad and Tobago, very little is known regarding consumers’ expectations and their response to food label information (Wang, Mao and Gale, 2008). Knowledge of the demographic sub-groups that may lack appreciation for nutrition labeling can assist policy makers with providing more targeted nutrition education programs or more effective adaptation of food

label regulations. Producers can also more efficiently utilize resources when knowing which demographic sub groups place a higher importance on nutrition labels in deciding between products. Socio-demographic and personal health related factors that influence food labels can be used to tailor health interventions to specific population sub- groups and food marketers may also use the findings of such a study to target particular nutritional information to specific individuals (Nayga, 1996).

In the above context, this study attempts to narrow knowledge gap within the food industry of Trinidad and Tobago by examining the extent to which consumers use various components of the food label. In addition, the study also examines the influence of socio-demographic and health related factors on the degree of use of nutrition labels.

METHODOLOGY

The target population for this study was final consumers of non-specific packaged food products. The survey instrument contained 52 closed ended questions that measured consumers’ knowledge of selected components of a typical food label, their perception of the importance and use of the major components of a typical food label. Consumers’ socio-demographic background was also captured. Major components of a food label assessed were; ingredients listing and preparation instructions; health claims, (sugar free, low sodium etc); use by and best- before dates; country of origin; the nutritional panel and; ethical labels (Fair Trade labels and organic certification labels etc.). Respondents’ knowledge of what six selected pieces of information on a food label meant was examined using True/False or Yes/No questions.

To assess degree of usage of food label components, respondents were asked how frequently they used the 26 components of a typical label using a 4 point ordinal scale that ranged from never (score=1) to always (score=4). The questionnaire was pretested among 10 individuals matching the target’s criteria. A convenient sampling technique was used to identify 302 consumers over the age of 18 years residing in Trinidad. In each region of Trinidad (South, Central and

North), surveys were done at the exit points of two of the physically largest supermarkets. At each survey site, the researcher interviewed 50 individuals. In addition to descriptive percentage analysis, Ordinary Least Square (OLS) Regression analysis was used to analyze the factors predisposing the degree of usage of food label components among the participants of the survey. The descriptions of variables used in the OLS are shown in Table 1. Data were analyzed with SPSS (v 20) and results were presented in the section that follows.

Table 1: Descriptions of variables used in the OLS

Variables	Descriptions
Diabetes	1 if the respondent has diabetes; 0 otherwise (no diabetes)
High Blood Pressure	1 if the respondent has high blood pressure; 0 otherwise (no high blood pressure)
High Cholesterol	1 if the respondent has high cholesterol; 0 otherwise (no high cholesterol)
Athletics	1 if the respondent's diet is influenced by athletics; 0 otherwise (no athletic dietary needs)
Religiousness	1 If the respondent has religious dietary restrictions; 0 otherwise (no religious dietary restrictions)
Allergies	1 if the respondent has dietary restrictions due to allergies; 0 otherwise (no allergies)
Rural /Urban	1 If the respondent is from an urban area; 0 otherwise (rural)
Male	1 if the respondent is male; 0 otherwise (female)
Age	Age bracket of the respondent. Response ranges from 1 to 6, where 1= 14 - 20 years; 2=21 - 35 years; 3=36 - 50 years; 4=51 - 70 years; 5=71 - 85 years; and 6= Over 86 years old
Ethnicity – Indian*	1 if the respondent is of Indian descent ; 0 otherwise
Ethnicity – Mixed*	1 If the respondent is of mixed decent; 0 otherwise
Ethnicity – Caucasian*	1 if the respondent is of Caucasian descent; 0 otherwise
Ethnicity – Others*	1 if the respondent is some other Ethnicity (not listed and also non-African); 0 otherwise

Level of Schooling	Level of schooling of the respondent. Response ranges from 1 to 4, where 1=none and 4=tertiary
Level of Income (1TT\$ = 6.4 USD in 2015)	Monthly income range selected by the respondent. Response ranges from 1 to 6, where 1= \$0 - \$2999; 2=\$3000- \$5999; 3=\$6000 - \$8999; 4=\$9000 - \$11999; 5=\$12000 - \$14999; 6=Over \$15000
Trust In Food Label Info.	Rating of trust on the accuracy of food label information. Response ranges from 1 to 4, where 4= trusted very much and 1= not trust
Brand Name Importance	Rating of importance of the brand name to respondent. Response ranges from 1 to 4, where 4=very important and 1=not important at all
Exercise	Number of hours of exercise per week performed by the respondent
BMI	Body mass index of the respondent (respondent weight in pounds multiplied by 703 divided by respondent height squared)
Fast Food Consumption	Number of times per week that the respondent eats fast food
Water Consumption	Amount of water, respondent drinks per day. Response ranges from 0 to 4; where 1= 0-3 Glasses; 2=4-7 Glasses; 3=8-11 Glasses; 4=Over 12 Glasses; and 0= I don't count
Fiber Consumption	Amount of fiber, respondent consumes per day. Response ranges from 0 to 4, where 1= 0-8 grams; 2=9-16 grams; 3=17-24 grams; 4=Over 25 grams and 0= I don't know.

* Reference Category – African Ethnicity

RESULTS AND DISCUSSION

Socio-demographic Composition of Sample

It could be inferred from the results that the majority of the sample was female (60%) and most lived in peri-urban/ rural areas of Trinidad (82%). Most respondents (59%) attained tertiary level education and most individuals were between the ages of 21 to 35 (39%) and 36 to 50 (30%). Of the sample, 59% were of mixed ethnicity. With respect to monthly income, most respondents earned between TT\$6,000 and TT\$11,999 (48%), an indication of a middle income background based on Trinidad standards. More than half the sample (52%) was classified as overweight and obese based on their calculated Body Mass Index (BMI).

The Degree of Usage of Food Label Components

The results that followed were used to determine the extent to which the sample population of Trinidadian consumers actually used food label information when deciding between food products. For each of components of the food label the respondents stated whether they never, rarely, sometimes or always used the particular component.

Degree of Usage of the Ingredients listing and Preparation Instructions

To begin with, 1% of the respondents said they never used food labels overall, 9% said they rarely used food labels overall, 58% said sometimes and 32% said they always use food labels overall. With respect to the ingredient listing of the food label 1% stated that they never used the ingredient listing, 12% rarely used the ingredient listing, 57% used the ingredient listing sometimes and 30% indicated that they always used it. Following was the usage of the preparation instructions of the product by consumers. Three percent said they never used the preparation instructions, 21% claimed that rarely used it, 47% sometimes and 30% always used the instructions provided on the packaging.

Table 2: Degree of Usage of Food Label Components

Variables	Never (%)	Rarely (%)	Sometimes (%)	Always (%)
Overall Use of labels	1	9	58	32
Ingredients Listing	1	12	57	30
Instructions for Preparation	3	21	47	30
Fat Free	6	22	46	26
Sugar Free	4	25	42	29
All Natural	5	21	44	30
Zero Trans Fat	6	23	43	28
Multigrain	5	19	46	30
High Fiber	6	18	45	31
Low Sodium	5	21	42	31
Calorie Free	7	21	45	26
Use By Date	0	4	19	77
Country of Origin	13	25	39	23

Sodium Content	9	23	44	25
Vitamin Content	4	25	50	21
Cholesterol Content	7	23	45	25
Sugar Content	3	18	44	36
Calorie Content	4	18	49	29
Fiber Content	6	24	51	20
Total Fat	4	21	46	29
Saturated Fat	6	25	42	27
Trans Fat	7	25	40	27
Polyunsaturated fat	10	30	39	21
Monounsaturated fat	11	27	40	21
GMO	18	24	37	21
Organic Certification	12	26	36	25
Fair Trade	21	31	34	14

Degree of Usage of Health Claims

The next eight questions enquired about the usage of various health claims by respondents. For the health claim fat free 6% of consumers surveyed said the rarely used that claim when deciding between products. Twenty-two percent said they rarely used the health claim, 46% said the sometimes used it and 26% said they always used the health claim fat free.

Sugar free was the health claim that followed with 4% of respondents saying they never used it, 25% said they rarely used it, 42% said sometimes and 29% said they always considered the health claims sugar free. The claim of all natural was also enquired. Five percent of the candidates claimed that they never considered this health claim, 21% rarely considered it, 44% sometimes and 30% said they always used the health claim of all natural. For the health claim of zero trans fat, 6% said they never used the claim in deciding between food products. Twenty three percent said that they rarely used the claim, while 43% and 28% said that they sometimes and always used the health claim respectively. The health claim of multigrain was never used by 5% of respondents, rarely used by 19%, sometimes used by 46% and always used by 30% of respondents.

Following was the health claim of high fiber. Six percent of respondents said that they never used this claim, 17% rarely used it, 45% sometimes and 31% said they

always used the health claim of high fiber. For the health claim of low sodium 16% never used the claim, 21% rarely used it, 42% sometimes used it and along with high fiber, low sodium was always used the most (31% indicating always). Calorie free was never used the most of all the health claims with 7% selecting never. Twenty one percent of respondents indicated that they rarely used it, 45% sometimes used the claim and it was always used the least with 26% of respondents choosing always.

Degree of usage of Use-By Date and the Country of Origin Information

The use by/ best before date was the most heavily used component of the food label by consumers surveyed. Only 0.3% of respondents said they never used the use by/ best before date, 4% said they rarely used it, 19% said they sometimes used it and of all the components it was always used most with 77% choosing that option. The country of origin component was indicated as never used by 13% of consumers surveyed, it was rarely used by 25% on the respondents, sometimes used by 39% and always used by 22% of consumers surveyed.

Degree of Usage of the Components of the Nutrition Panel

The next six enquires related to the use of the nutrition panel. Sodium content information was never used the most with 9% of the sample selecting that option. Twenty-three percent of consumers surveyed indicated that they rarely used it, 44% sometimes used it and 24% always used the sodium content information on the nutrition panel. Vitamin content was never used by 4% of respondents, rarely used by 25% of respondents, sometimes used by 50% and always used by 21%. The cholesterol content of the product was never considered by 7% of respondents, 23% indicated that they rarely used it, 45% sometimes and 25% always used the cholesterol content information. The sugar content information was never used the least with only 3% choosing that option. Seventeen percent indicated that they rarely use it, 44% sometimes and the always option was also chosen the most for sugar content with 36%. Calcium content was never used by 4% of respondents,

rarely used by 18%, sometimes by 49% and always used by 29%. Lastly for the nutrition panel was the fiber content with 6% indicating that they never used that information, 23% rarely used it, 51% sometimes and 20% always considered the fiber content information.

Degree of Usage of the Fat Content Information

The following portion of this section examined the usage of the various types of fat content information found on the food label. Beginning with the total fat content for which the never option was indicated the least of the fat information at 4% of respondents. Twenty percent said they rarely used the total fat content information, 46% said sometimes and 29% indicated that they always used it. This was followed by saturated fat information which was never used by 6% of the sample population, rarely used by 25%, sometimes used by 42% and 26% claimed that they always used it. Trans fat content was subsequently enquired with 7% saying that they never used it, 25% rarely, 40% sometimes and 27% indicated that they always used such information. Polyunsaturated fat information was never used by 10% of consumers surveyed, rarely used by 30%, sometimes used by 39% and 21% of candidates indicated that they always used it. Monounsaturated fat was indicated as never being used the most of the fat information with 11% of respondents surveyed indicating such. Twenty-seven percent said they used it rarely, 40% said sometimes and a relatively low number of respondents said they always used it at 21%.

Degree of Usage of Ethical Labels

The final portion of this section of the questionnaire was classified as ethical labeling and entailed three components of the food label. The first of which was the usage of information on Genetic Modification of the food product. A high 18% indicated that they never considered such information, 24% rarely did so, 37% sometimes and 21% always used GMO information when deciding between products. Organic certification of the food product was never considered by 12% of respondents, rarely considered by 26% of respondents, sometimes considered by 36% and 25% always considered it. Lastly, Fair Trade Certification was indicated as never

used the most out of all the food label components with 21% of respondents selecting that option. A high 31% indicated that they rarely used it while 34% indicated sometimes. Fair Trade Certification also had the lowest number respondents indicating that they always used the component with 14%.

Factors influencing degree of usage of food labels

Ordinary Least Squares regression analysis was used to determine the influence of socio-economic and demographic factors on the degree of usage of food labels (Table 3).

Table 3: Ordinary Least Squares Regression of the Independent Variables on Food Label Usage

Explanatory Variables	Coefficient	Std. Error	T-ratio	P-value
Constant	81.55	8.48	9.62	<0.00001
Diabetes	5.52	2.80	1.97	0.05**
High Blood Pressure	0.10	2.38	0.04	0.97
High Cholesterol	2.94	2.60	1.13	0.26
Athlete	4.92	2.92	1.69	0.09
Religion	-1.56	3.06	-0.51	0.61
Allergic	5.26	2.05	2.57	0.01***
Gender-Male	-1.02	2.29	-0.45	0.66
Urban/ Rural	-5.84	1.75	-3.34	0.0001***
Age	0.59	1.12	0.53	0.60
Ethnicity – Indian [#]	2.04	2.41	0.85	0.40
Ethnicity – Mixed [#]	-6.55	5.71	-1.15	0.25
Ethnicity – Caucasian [#]	0.96	2.06	0.47	0.64
Ethnicity – Others [#]	-3.27	6.12	-0.53	0.59
Level of School	-3.31	1.62	-2.04	0.04**
Level of Income	0.68	0.69	0.98	0.33
Trust of Food Labels	0.07	1.17	0.06	0.95
Brand Importance	0.13	1.01	0.13	0.90
Exercise	0.28	0.25	1.16	0.25
BMI	0.05	0.17	0.27	0.79
Fast Food Consumption	-1.43	0.61	-2.35	0.02**
Water Consumption	0.10	1.22	0.08	0.94
Fiber Consumption	3.20	0.66	4.81	<0.0001***

*Adjusted R*²= 0.663; *F* (22, 277): *P*-value (*F*) = 0.000008

- Reference category: African Ethnicity; **p* ≤ 0.10, ***p* ≤ 0.05, ****p* ≤ 0.01

The model showed a good fit with an adjusted *R*² of 0.663 (66.3%). Of the explanatory variables included in the model, six explanatory variables, *viz.*, (i) diabetes; (ii) allergies; (iii) gender-male; (iv) level of schooling; (v) fast food consumption and (vi) fiber consumption had significant impact on the use of food label information. Results of the study indicated that the respondents with diabetes were more likely (*p* ≤ 0.05) to use food labels on average. Similarly, the consumers who followed diet restrictions due to allergies were more likely (*p* ≤ 0.011) to use food labels on average. Surprisingly, male consumers bothered significantly (*p* ≤ 0.0001) less to use food label information over their counterparts. Food label usage decreased significantly (*p* ≤ 0.04), on average with an increase in the level of schooling. As the consumption of fast food increased (times consumed per week) food label usage decreased significantly (*p* ≤ 0.02) on average. Contrastingly, food label usage increased significantly (*p* ≤ 0.00001) on average as the daily consumption of fiber increased.

The extent to which Trinidadian consumers interacted with food label information was examined from three angles. This included the perception that consumers had with respect to importance of food label information, the degree of usage of food label information when deciding between competing food products and the level of understanding consumers had of food label related information.

The extent of the actual usage of food labels by Trinidadian consumers in many ways reflected their perception of importance of the information. As with the perception of importance, the use by /best before date was the highest ranked component with 77% of the sample indicating that they always used such information. Hence, consumers not only consider this critical feature of the food label to be important but also act on that perception in terms of usage.

The second most used component however was not the ingredients listing, but the sugar content information of the food label. This may be because diabetes has become the second leading cause of death in Trinidad and Tobago according to the T&T Health Sciences Initiative (TTHSI 2012). This may be leading to higher interests

in the sugar content of food products. Marketers in Trinidad seeking to gain an advantage may find it in lowering the sugar content of their food products as opposed to competitors as consumers have indicated a high degree of both usage and importance of the sugar content information.

The fair trade labeling component was the least used with 21% indicating that they never use such information. This can simply be explained by the fact that fair trade labeling can be rarely found in the local market. The health claim 'all natural' reflected its high perception of importance in terms of usage with 30% of consumers saying they always used the claim when deciding between food products. This indicates that the phrase is in fact an effective marketing tool. However, it can be inferred that from a health education perspective a high percentage of the public is being misled by what the phrase implies.

CONCLUSION

In comparing the aggregate degree of importance to that of usage of food labels the extent to which consumers found food labels to be important far outweighed their actual usage of food labels. This finding is consistent with many other studies related to human behavior that showed that actual behavior is typically inconsistent with attitudes and beliefs. This indicates that although Trinidadians may have an appreciation for the information provided on food labels they lack the incentive to actually incorporate it in their daily lives. Health education campaigns may help to fill this gap by re-emphasizing the value of food label information to healthy lifestyles and demonstrating ways that food labels can be more easily interpreted and adopted as a habit when deciding between food products.

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