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Nutritional Information Usage and Socio-economic Status: An Enquiry of Hispanic Consumers in Laredo with Implications for Public Policy and Social Marketing

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INTRODUCTION

The Nutritional Labeling Education Act (NLEA) was signed into law on November 8, 1990. The objective of this legislation was to provide consumers with information that would assist them in making food choices that would help them maintain optimal health because of the links between dietary choices and long-term health. Choosing nutritious foods with the help of information on nutrition labels will have important implications for consumer welfare (Levy, Fein, and Stephenson 1993). The new food labeling legislation mandated nutrition labeling on most processed foods under the jurisdiction of the FDA, established reference Daily Values for certain nutrients, defined serving sizes, and limited health claims. It also established guidelines for voluntary labeling of raw fruits, vegetables, and seafood.

In order to establish or maintain healthy dietary practices, consumers must have the necessary information available and actively seek that information. The effectiveness of nutrition information programs, therefore, is contingent upon consumers' use of nutritional labels. It is possible that many individual diets fall short of the Dietary Guidelines because they do not use or care about nutritional information provided on food packages to help them in their food buying decisions (Nayga 1996). It is, therefore, important to know the factors affecting consumer's use of nutritional labels. Understanding nutritional label use among the Hispanics of Laredo is especially important because high rates of obesity and diabetes are prevalent. According to the Center for Disease Control (2002) among Mexican Americans the prevalence of overweight increased from 67% to 73% and the prevalence of obese increased from 28% to 34% during the period from 1994 to 2000. Clearly, studying nutritional label usage

among Laredo Hispanics is a first step in addressing the problems of obesity and its attendant complications.

Mexican-Americans Health

In 2004, 14% of the U.S. population (41.3 million) was identified as Hispanic with 64% from Mexico. (U.S. Census Bureau, 2005). While poverty has increased from 12.1% in 2002 to 12.5 % in 2004, for the US as a whole these rates are higher for the Hispanic population. In 2004, more than 60% of black and Hispanic children under 18 years of age and more than 50% of black and Hispanics persons over 65 years of age were poor. Further, Hispanics and Mexican Americans as a group seek health care less often than other groups such as Puerto Ricans, White and Black non-Hispanics and other Hispanics such as Cubans (Estrada, Trevino, and Ray 1990). Further their usage of preventative services such as annual medical check-ups, dental and eye examinations, pre natal, and family planning services is lower than other groups (Solis, Marks, Garcia, and Shelton 1990). According to the American Journal of Public Health (2001), Latino children of immigrant parents are more likely to lack insurance and access to routine health care than are Latino children of US-born parents. A study by Carrasquillo, Carrasquillo, and Shea (2000) concluded that immigrants who are not US citizens are much less likely to receive employer-sponsored health insurance or government coverage. They estimated the number of uninsured immigrants to be 44% and the number of Mexican immigrants comprised 55% of all immigrants.

Hispanic patients face a number of barriers in their access to health care. Some of the barriers include language and communication differences between patients and health care providers, socioeconomic status of individuals, educational achievements, and lack

of health care professionals who are minorities (Brice and Campbell 1999; Brice 2000). The inability to speak English well is an important communications and health access barrier. Kirkman-Liff and Mondragon (1991) found that those Hispanics who interviewed in Spanish had lower health status and access to health care that was worse than those who interviewed in English. Lack of fluency in spoken English seems to hamper communications with health care professionals, which makes Hispanics hesitant to visit a doctor or seek professional advice. Further, lack of literacy in English also impacts the ability to follow directions of health care professionals or read instructions on medicine prescription.

The quality of health care is also affected by the socio-economic status of Hispanics, especially their level of education, occupation, and income (Kirkman-Liff and Mondragon 1991). A large percentage of Hispanics are employed in sectors like farming, service industry, and construction where the incidence of employers providing health insurance is low. For example, 9% of Mexican Americans are employed in the farming sector (Ginzberg 1991). Thus, Hispanics are at risk of being uninsured, which makes it difficult for them to seek medical advice in times of sickness and health care in terms of dental checkups and regular physicals is a rarity. Thus, a large percentage of Hispanics use emergency care for their health care needs. Lastly, health care for Hispanics is affected by a lack of Hispanic health care professionals. Less than 5% of U.S. physicians and medical students are Hispanic (Council Report on Scientific Affairs, 1991).

Health inequities

A National Healthcare Disparities Repot published by the U.S. Department of Health and Human Services reports that the overall health of Americans has improved dramatically over the last century, however people of lower socio-economic status and racial and ethnic minorities have experienced poor health and challenges in accessing quality health care. Inequalities in health have grown in the last 20 years, and these disparities are evident in a graphic manner on the border. Residents of the border region must deal with high levels of HIV/AIDS, tuberculosis and other communicable diseases. The border area also experiences higher levels of asthma. In fact, Imperial County has the highest asthma levels in the state.

Widespread poverty, lack of adequate access to health care, large numbers of uninsured, shortages of health professionals, low immunization rates, lack of education, poor sanitation, pollution risks—all contribute to the dismal health conditions in many communities in the region. The health problems that those residents face are numerous and extreme. Approximately 10 percent of all Hispanic/Latino Americans (2 million) have diabetes. Hispanic/Latino Americans are twice as likely to have diabetes then are Caucasian Americans. Diabetes is twice as common among Mexican Americans and Puerto Rican Americans then among Caucasian Americans. Obesity and physical inactivity are the main risk factors for diabetes among Hispanic/Latino Americans. Obesity is a major risk factor for Type 2 diabetes, and Hispanics are more likely than non-Hispanic whites to be overweight. It is known that the prevalence of obesity is higher in Mexican-Americans and they are known to be two to four times more likely to have Type 2 diabetes than non-Hispanic white Americans of similar weight. Figure 2

compares the prevalence of Type 2 diabetes between Mexican-Americans and non-Hispanic whites by the level of obesity.

Sample

The survey was administered to a sample of residents of Laredo. Data for the survey was collected by students in a marketing class. Participation in the survey was voluntary and confidentiality was assured. After screening for incomplete questionnaires, a total of 110 responses were considered for analysis. Demographic details of the sample are provided in Table 1a-1g.

Data Analysis

Principal component analysis revealed a clear factor structure for nutritional label usage and locus of control. Cronbach's alpha was calculated to test for the reliability of the scales. The coefficient alpha for the nutritional label scale was .71, and for the locus of control scale it was .76. These reliability scores are considered satisfactory, especially since this is an exploratory study and a less conservative value of 0.50 is considered acceptable (Nunnally, 1967).

RESULTS

We used a number of statistical techniques to analyze the data. We used frequencies to describe our sample, cross-tabulations to enquire into relationships, , analysis of variance (ANOVA) was used to test group differences. ANOVA is an appropriate technique to test for the significance of differences between more than two sample means (Levin and Rubin, 1998). We were interested is the responses of our respondents to items such as product label usage, sources of influence, label usage behavior, diet knowledge about USDA guidelines, and attention and awareness regarding

product label claims. We used percentages to analyze the responses, which are detailed in the following paragraphs.

The results show that respondents who use food labels pay attention to some items more that others. For example, 53% of the respondents reported that they never look for information on salt/sodium content in the food products they purchase. The data shows that our respondents are aware of trans fats and about 20% look for this information. Respondents reported paying attention to information on calories. 23% reported that they looked for the calorie value of food all the time and 22% reported they looked for this most of the time. Taken together we find that over half the respondents reported using and paying attention to the information relating to calories. Our respondents do not report looking for information relating to fiber. Around 35% reported that they do not look for information about the fiber content in the foods they purchase. Interestingly, regarding sugar, 40% respondents reported that they did not look for the sugar content and 44% reported that they did.

We were interested in knowing whether our respondents had knowledge about the USDA guidelines regarding food servings and characteristics of foods. Our respondents seem to have knowledge about food. Around 49% reported that one should have around three to five servings of vegetables, 72% reported that meat and poultry had the most cholesterol, and 70% reported that vegetables and fruits contained the most vitamins A&C, folic acid, minerals, and fiber. These results show that our respondents have enough knowledge to make good choices.

We were interested in knowing if people pay attention to claims made by manufacturers. It is common for food marketers to promote the health benefits of their

products and claims like “low fat”, “sugar free”, and “high fiber” are often mentioned on the packaging of food products. We wanted to know if consumers paid attention to these claims, because it is likely that if they paid attention and were cognizant of these claims they would make food choices that would support that diet requirements. The respondents in our sample seem to pay attention to food labels. For example, 51% reported paying attention to “sugar free”, and 47% reported paying attention to “low fat”. It is interesting to note that “fiber” as a claim is not of much salience and around 32% reported that they seldom pay attention to this claim.

We wanted to know the extent of knowledge about certain characteristics about nutrition labels. For example our study found that 74% of the respondents knew that the government required nutrition facts labels behind food packages. However around 67% did not know that on a food label the ingredients are listed according to amount and the ingredient with the most quantity is listed first and so forth. Further, 63% of our respondents did not know that people with diabetes should pick food high in fiber.

We were interested in looking at relationships between respondents’ sources of information and use of nutrition labels. There is a positive correlation between respondents who reported using food labels to make food choices and those who get their information about diet and health from their doctors and health providers ($r=.398$, $p<.000$) and those who use food labels on packages to get information about diet and health ($r=.414$, $p<.000$). Interestingly, we found a high correlation between people who used nutritional labels and those who look for specific information. This makes intuitive sense in that when they read food labels it is to search for specific information. For example the correlation between nutrition label use and looking for information on salt is

.405, p<.000), between label use and looking for trans fat is .426, p<.000), between label use and calories is .302, p<.000), between label use and fiber is .424 (p<.000), and between label use and sugar is .379 , p<.000). Finally those who thought the information on the label is reliable also read the label (r=. 341, p<. 000).

Demographic Variables Analysis

ANOVA was used to examine the independent, though separate, effects of age, nationality, ethnic identity, gender, and education level on nutritional label use and locus of control respectively. The results of these analyses are presented in Table 3 and 4.

Age. We were interested in investigating if there were age difference. We found that for both the above-mentioned dependent variables, age was not related and there were no significant differences between the different age groups.

Nationality. We examined the differences on account of nationality with regard to nutritional label use and locus of control. Our reasoning was driven by the notion that U.S. nationals would have different label usage and locus of control for a variety of reasons including the fact that there are differences in the awareness and availability of nutritional information. In the US, the retail environments are well developed and manufacturers have to comply with label laws. The findings indicate that there are significant differences between Mexicans and Americans regarding label usage with Mexicans reporting stronger label usage as compared to Americans (mean value of 3.6 versus3.02). With regard to locus of control there are no significant differences between these two nationalities.

Income. We had an intuitive understanding that income would influence both nutritional label use and locus of control. This is based on the notion that higher incomes are related

to many resources, including access to knowledge, information and availability of quality food products. It is fair to suggest that persons with resources would have more control over their heath and make good food choices. The results show that there are significant differences between income groups and their use of labels.

Gender. We expected to see gender differences in both label usage and locus of control because it is observed that females are more likely to pay attention to issues of diet and nutrition. Our data does not show any significant differences between genders regarding label use and locus of control.

Education Level. Education levels could be related to nutrition label use and locus of control since education gives an individual many opportunities to learn. Our data shows that there are significant differences between education levels and label use. High school graduates report greater label use than respondents with some college and masters degrees. Significant differences were also observed between different education levels are their reported locus of control.

We ran a series of cross tabulations to investigate the relationship between what influences product label comprehension and usage. We found a positive relationship between understanding and usage. The data showed that those who reported that they understood food labels also reported that they used them to purchase products (chi-square = 36.800, df = 16, sig=.002). When we regressed locus of control on to nutritional label usage we found a positive relationship (beta of .201, p = .030). This result supports our assertion that those respondents who scored high on locus of control and had the confidence that they are in a position to manage their health and make good food choices also tend to read and use nutritional labels.

Implications for Public Policy and Social Marketing

The Social Marketing Assessment and Response Tool (SMART) model (Andreasen, 1995) is used to establish a relationship between social marketing and culturally specific interventions like explaining the importance of a nutritional label. The model incorporates a systematic and sequential process that includes preliminary planning; audience, channel, and market analyses; materials development and pretesting; implementation; and evaluation. Research shows that interventions that are developed and implemented with this approach hold promise as solutions that are more likely to be adopted by targeted audiences and to result in the desired health status changes.

One of the tasks for any social marketing initiative would be to educate people about the nutrition label, its format and specifics. A major provision of the NLEA is the requirement to identify specific amounts per serving of nutrients such as total calories, calories derived from total fat, total fat, saturated fat, cholesterol, sodium, carbohydrates, dietary fiber, and protein. In addition, recommended daily value percentages are listed for total fat, saturated fat, cholesterol, sodium, carbohydrates, and fiber. It is hoped that this education will "assist consumers in interpreting information about the amount of a nutrient present in a food and in comparing the nutrition values of food products" (Federal Register 1990, 29476). From our analysis we see that the respondents were aware of fat, sugar, and calories, but they did not report paying attention to salt and fiber. This is an important finding because these two elements of a diet are extremely important to manage two of the most important health problems that is evident in this community: obesity and diabetes. A social marketing program has to explain the role of all elements in a diet paying particular attention to fiber and salt.

Enhancing nutrition awareness and knowledge is especially important for Hispanics who represent one of the fastest growing segments of food purchasers in the United States. Further, Hispanics as a group are reported to suffer from obesity, diabetes and its many complications. Our results show that education and income levels are important predictors of label use and locus of control. Public policy has to design programs to address persons with low education and income and educate them on the use of labels since this group of people is also prone to suffer from higher rates of obesity and diabetes.

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Table 1a
Age

	Frequency	Percent	Cumulative Percent
< 21 years	12	11.3	11.3
21-29 years	23	21.7	33.0
30-39 years	7	6.6	39.6
40-49 years	4	3.8	43.4
> 50 years	60	56.6	100.0
Total	106	100.0	

Table 1b
Gender

	Frequency	Percent	Cumulative Percent
< 21 years	56	52.8	52.8
21-29 years	50	47.2	100.0
Total	106	100.0	

Table 1c
Nationality

	Frequency	Percent	Cumulative Percent
U.S.	56	52.8	52.8
Mexico	44	41.5	94.3
Other	6	5.7	100.0
Total	106	100.0	

Table 1d

Language Details

	Spoken			Read			Spoken at Home			Spoken with Friends		
	F	%	C%	F	%	C%	F	%	C%	F	%	C%
English	12	11.3	11.3	46	43.4	43.4	13	12.3	12.3	31	29.2	29.2
Spanish	34	32.1	43.4	33	31.1	74.5	64	60.4	72.6	50	47.2	76.4
Both	60	59.6	100.0	24	22.6	97.2	29	27.4	100.0	16	15.1	91.5
Other	-	-		3	2.8	100.0	-	-		9	8.5	100.0
Total	106	100.0		106	100.0		106	100.0		106	100.0	

Table 1e
Education

	Frequency	Percent	Cumulative Percent
Some School	9	8.5	8.5
High School	5	4.7	13.2
Some College	63	59.4	72.6
Bachelors	10	9.4	82.1
Masters	19	17.9	100.0
Total	106	100.0	

Table 1f
Income

	Frequency	Percent	Cumulative Percent
< $25,000	47	44.4	44.1
$25,001-$50,000	33	31.1	75.5
$50,001-$75,000	9	8.5	84.0
> $75,000	17	16.0	100.0
Total	106	100.0	

Table 1g
Zip Codes

	Frequency	Percent	Cumulative Percent
78040	8	1.9	1.9
78041	28	26.4	28.3
78042	2	1.9	30.2
78043	5	4.7	34.9
78045	45	42.5	77.4
78046	12	11.3	88.7
78048	2	1.9	90.6
78050	6	5.7	96.2
88270	2	1.9	98.1
88274	2	1.9	100.0
Total	106	100.0	

Table 2

Regression Analysis of Nutritional label use on Locus of Control

Independent Variables	Standardized Coefficient	t-value	p-value
Locus of control	.201	2.094	.039
R^2 = .040 Adjusted R^2 = .031 F-value = 4.386 p-value= .039			

Table 3

ANOVA Results for Demographic Variables

Background Variables	Dependent Variable: Nutrition Label Use			
	d.f.	f-value	p-value	Result
Age	4	1.606	.176	Not supported
Nationality	2	6.160	.003	Significant differences between Mexicans and US citizens
Income	4	3.809	.006	Significant differences between income groups
Gender	1	.054	.816	No significant differences
Education	4	5.567	.000	Significant differences between high school graduates and college students

Table 4

ANOVA Results for Demographic Variables

Background Variables	Dependent Variable: Nutritional Locus of Control			
	d.f.	f-value	p-value	Result
Age	4	.884	.476	Not supported
Nationality	2	9.072	.000	Significant differences
Income	4	3.809	.006	Significant differences between income groups
Gender	1	1.491	.225	Not supported
Education	4	3.847	.000	Significant differences between some college and masters