How to Read and Understand Nutrition Facts Labels

A Senior Project

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Bachelor's of Science

by

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Abstract

More than half of the world's population is overweight. The numbers have tripled in Europe, Middle East, China, and Pacific Islands. Adult Americans are about two-thirds overweight. The numbers will continue to grow if the population does not take the proper action. America has an overweight problem and the purpose of this paper is to educate the population about nutrition facts labels, and help the world make better food choices.

The author studied a brochure created by the FDA on how to read nutrition facts labels and then create their own based on the previous brochure. The author added other vital information, such as, ingredients panel, and the suggested food intake for the separate food groups. Next, the author created a questionnaire to test how well the population used the brochure and if it was effective or not.

The study was conducted outside three different grocery stores in the city of San Luis Obispo, CA. The study showed most of the people were between the ages of 40 and 55 years, more than half of the people were familiar with nutrition facts labels, and if provided with a brochure on how to read to nutrition facts label they would use it when grocery shopping.

With the statistics of this research, the author hopes that it may have an impact on some of the population, and educate the public about healthy living.

Chapter 1

More than half of the world's population is overweight. Obesity as of 1980 has tripled in Europe, Middle East, China, and Pacific Islands. More specifically, in America about two-thirds of adults are overweight. Also, in America one-third of adults are obese. In a recent study, immigrants that moved to America increased their risk of obesity to 19 percent. In children ages between 6 and 11 have tripled, and doubled in teens. *(Wang*).

Fat is not only a cosmetic problem, it is a health problem. Excess weight weakens the heart, raises blood pressure, clogs arteries, strains back and joints, and increases the risk of diabetes, stroke and cancer. The earlier the weight gain, the greater the dangers it poses. For example, an obese woman at the age of 20 can cut 20 years off her life. *(Heart Disease*)

There are a variety of reasons why obesity has become such a common problem; the top three are excessive calories, bigger portions, and fast food. Americans are eating 200-400 more calories in one day than they ever did before. These refined carbohydrates are increasing triglycerides in the blood, which increase the risk of diabetes, as well as obesity. During the last 20 years portions have become two to five times larger. Studies have shown that people who eat larger portions eat 30 percent more than they would otherwise. In addition, people who eat at fast food restaurants regularly gain more weight and increase the development of metabolic abnormalities.

The statistics, of course, add up, but when all is said and done they are just numbers. People know that there is an obesity epidemic, but for the initiative of change or prevention, it is ignored. Some specialists would suggest exercising more, planning meals, and eating at home. However, how do you obtain this living?

Statement of the Problem

There is a high risk of health issues that are directly related to obesity. Obesity is an increasing problem in our society. These risks associated with obesity could be prevented if the public was better educated about eating healthier.

The Importance of the Project

One- third of America's population is obese, and two-thirds is overweight. It is important that people take into account what they are doing to their bodies. It is not about looking good, it's about feeling good. One of the most important tasks that can be undertaken at this time is to inform the public to make healthier choices.

Purpose of the Project

The purpose of this project is to provide nutritional guidance. Many students, parents, children, and elderly cannot read and/or do not understand a nutrition facts label. There is a reason why these labels are mandated by the state; the nutrition facts label is an important factor to eating right.

Objectives of the Project

The objectives to accomplish the purposes of this project are:

- To create a pamphlet on how to read and understand nutrition facts labels.
  - * Include information on dietary recommendations.
  - * Discuss briefly what each component of the nutrition fact label means.
- To create a booth in front of a grocery store and conduct a study.
  - * Distribute pamphlets to at least 60 shoppers to obtain feedback.
  - * Have a questionnaire enclosed in the pamphlet and have them return their response when completed. The questionnaire will include questions about the efficiency of the pamphlet.

Definition of Terms

Obesity: The state of being well above one's normal weight. A person has traditionally been considered to be obese if they are more than 20 percent over their ideal weight. That ideal weight must take into account the person's height, age, sex, and build. Obesity has been more precisely defined by the National Institutes of Health (the NIH) as a BMI of 30 and above. (A BMI of 30 is about 30 pounds overweight). (*Medical Dictionary).*

BMI: (body mass index), a key index for relating body weight to height, is a person's weight in kilograms (kg) divided by their height in meters (m) squared. Since the BMI describes the body weight relative to height, it correlates strongly (in adults) with the total body fat content. Some very muscular people may have a high BMI without undue health risks. (*Medical Dictionary).*

Overweight: Designates a state between normal weight and obesity. The National Institutes of Health (NIH) now defines overweight in terms of the BMI (the body mass index) which is a person's weight in kilograms (kg) divided by their height in meters (m)squared. Since the BMI describes the body weight relative to height, it correlates strongly (in adults) with the total body fat content. Overweight is a BMI of 27.3 % or more for women and 27.8 % or more for men, according to the NIH. (*Medical Dictionary).*

FDA: The Food and Drug Administration (FDA or USFDA) is a Government agency of the United States Department of Health and Human Services and is responsible for regulating and supervising the safety of foods, tobacco products, dietary supplements, Medication drugs, vaccines, Biopharmaceutical, blood transfusion, medical devices, Electromagnetic radiation emitting devices, veterinary products, and cosmetics. *(Wikipedia).*

USDA: The United States Department of Agriculture (informally the Agriculture Department or USDA) is the United States federal executive department responsible for developing and executing U.S. federal government policy on farming, agriculture, and food. It aims to meet the needs of farmers and ranchers, promote agricultural trade and production, work to assure food safety, protect natural resources, foster rural communities and end hunger in the United States and abroad. *(Wikipedia).*

Summary

This study focuses on educating the public about nutrition facts labels. This project will create awareness of good nutrition in hope of reducing the number of obese people. The objectives will be to create a pamphlet on how to read nutrition facts labels, and have at least 60 people fill out the questionnaire. The questionnaire will help the author determine the importance of disseminating type of information.

Chapter 2

Developing a brochure on how to read a nutrition fact label and allowing it to be user friendly, should be welcomed by every consumer. The brochure will aide in reading and understanding nutrition fact label, which is part of food labeling, and it is one of the most important concepts in packaging. Labeling is the most misleading and confusing part of buying products. Food labeling is required on most food products. For the "conventional" foods (fruits and vegetables) have no necessary requirement for a label (*Guiding Principles for Nutrition*).

History of Food Labels

The first published regulations that made nutrition labeling of certain foods mandatory was issued by the FDA in 1973. The labeling was mainly targeted to foods with added nutrients and those that had a nutrition claim on the label or advertising. Seventeen years later, in 1990, the Nutrition Labeling and Education Act (NLEA) lengthened the mandatory nutrition label not only to certain foods, but all foods regulated by the FDA (About FDA). This "Act requires all packaged foods to bear nutrition labeling and all health claims for foods to be consistent with terms defined by the Secretary of Health and Human Services. The law preempts the state requirements about foods standards, nutrition labeling, and health claims and, for the first time, authorizes some health claims for foods. The food ingredient panel, serving sizes, and terms, such as "low fat" and "light" are standardized." (About FDA). On the controversy, consumers are being "misled by many food labels that exaggerate the presence of healthful ingredients, according to the nonprofit Center for Science in the Public Interest (CSPI)."(*Crackdown on*

Fraudulent Food Labels). This brings the importance of a more educated public in how to read nutrition labels, in order to prevent a misled population of products that may not be healthy.

Long History of Food Labeling

The increase of nutritional awareness was fueled by Peter Collier in 1880, who was chief chemist for the United State Department of Agriculture (USDA). In 1906 the Pure Food and Drugs Act was passed by Congress. This act states, "The act is a United States federal law that provided federal inspection of meat products and forbade the manufacture, sale, or transportation of adulterated food products and poisonous patent medicines. The Act arose due to public education and exposés from authors such as Upton Sinclair and Samuel Hopkins Adams, social activist Florence Kelley, researcher Harvey W. Wiley, and President Theodore Roosevelt." (History of food labeling). This law was the beginning of familiar group, Food and Drug Administration; June 30, 1906 is known to be its founding date.

In 1913, the Gould Amendment was passed by Congress, it "requires that food package contents be plainly and conspicuously marked on the outside of the package in terms of weight, measure, or numerical count" (About FDA). In U.S. vs. Lexington Mill and Elevator Company, the first ruling of food additives was issued. The Supreme Court ruled that in order for bleached flour with nitrate residues to be banned from foods, the government must present the relationship between chemical additives and the harm that can be caused to humans.

The US Federal Food, Drug, Cosmetic Act is a set of laws passed by Congress (1938) that gives the FDA full control of food safety, drug, and cosmetics. These new provisions are as read: "Extending control to cosmetics and therapeutic devices, requiring new drugs to be shown safe before marketing a new system of drug regulation, eliminating the Sherley Amendment

requirement to prove intent to defraud in drug misbranding cases, providing that safe tolerances be set for unavoidable poisonous substances, authorizing standards of identity, quality, and fill-of-container for foods, authorizing factory inspections, adding the remedy of court injunctions to the previous penalties of seizures and prosecutions." (About FDA).

In 1966, the Fair Packaging and Labeling Act was passed, which requires all consumer products in interstate commerce to be honestly and informatively labeled, with FDA enforcing provisions on foods, drugs, cosmetics, and medical devices (About FDA).

Finally, under the Nutrition Labeling and Education Act of 1990, the basic per serving nutritional information was required on foods (1992). FDA and the Food Safety and Inspection Service of the Department of Agriculture reconstructed the food label in a more user friendly format that lists the most important nutrients. From the year 2000 to present the main issue has been targeted to obesity, especially, calorie counters and dietary recommendations. On August 2006, a brochure was created to help individuals understand and read nutrition facts labels. This brochure should be updated for a more user friendly approach (About FDA).

Chapter 3

This research was conducted initially based on the authors' observations of the poor dietary intake of fellow college students. The observation developed a theory that if students were given the proper dietary instruction then they would adjust their intake and would be more nutritionally balanced.

Research of FDA Dietary Guidelines

When reading the FDA Dietary Guideline brochure it illuminated its lack of vital information and awareness to the consumer. The brochure lacked information in several areas; such as, how to read the ingredients, information about calories, information about nutrients, and the certain food groups that consumers should focus on for their daily intake.

Analysis of FDA Guidelines

The analysis of the FDA Dietary Guideline brochure led to the resolution that the brochure should be updated. This author developed a pamphlet on how to read and understand nutrition facts labels. It includes the basic information found in the FDA brochure and the vital information that it lacked. The instrument was piloted with 9 people and 1 professor in the Agricultural Education and Communication Department at California Polytechnic State University. Notes of clarification and corrections were received and incorporated into the questionnaire.

Population

The target population for this study consisted of the San Luis Obispo, California population. According to the 2009 census the population of San Luis Obispo, California is

44,750 people and the county consists of 270,429 people. The median household income is $57,628 in San Luis Obispo County and $42,526 in the city of San Luis Obispo. (*State and County Quickfacts).* California Polytechnic State University is located in San Luis Obispo and student enrollment as of fall 2008 is 19,471. The three different grocery stores that the researcher used to cross-section the study were Trader Joe's, Ralphs, and Albertsons. Trader Joes targets a clientele that is more health conscience and nutritionally motivated. Ralphs and Albertsons are located on opposite sides of the city. The researcher gathered questionnaires from 60 participants who completed the questionnaire. The study group was a mix of students, adults and elderly.

Instrumentation

The author created an insert for the updated brochure for the purpose of identifying common, unfamiliar topics or aspects of reading and understanding a nutrition facts label. All surveys/ inserts were returned to the researcher after they filled it out during their time in the grocery store. The insert or questionnaire included several questions to test what the general public's awareness is of nutrition facts labels. The insert was broken into three sections; the first section includes questions about the general public awareness of nutrition facts labels. The questions include: "Are you familiar with a nutrition facts label (Yes or No)", "how often do you read a nutrition facts labels (never, rarely, sometimes, always)", "does the nutrition facts label influence your product choice (yes, no, sometimes)", and "on a scale 1-10 how would you rate your skills of using a nutrition facts label (1= not at all, 10=excellent)".

The next section of the questionnaire is to provide information to the researcher if the brochure was used to answer the questions that were asked. The questions include: "choose your favorite box of cereal, locate the nutrition fact label and calculate how many calories are in each serving (*answer*, did you use your brochure? Y/N, why or why not?)", "on the same box of

cereal locate the ingredient was used in the greatest quantity (*answer*, did you use your brochure? Y/N, why or why not?)", and "if you consume an apple and a pear, how many servings of fruit do you need to satisfy your recommended daily amount (*answer*, did you use your brochure? Y/N, why or why not?)."

The final section of the questionnaire was created to help the researcher know how helpful, if at all, the brochure was. The questions included: "On a scale 1-10 how helpful was this brochure in reading nutrition facts labels (1= not at all, 10= very much)", "did you find the brochure easy to read and understand (Yes, somewhat, Not at all)", "would you use this brochure again when grocery shopping (Y/N)", and "how can this brochure be improved (*answer).*"

Data Collection

The researcher collected the initial surveys from Albertsons on June 25, 2009 with a total of 25 responses. On June 30, 2009 the researcher collected 20 surveys from Ralphs. Again, on July 15, 2009 the final surveys were collected from Trader Joes with a total of 15 responses.

The Study

As the completed surveys were returned, the responses were recorded in an Excel spreadsheet. The responses were stratified by surveys as opposed to just combining and tallying the results as a whole. Each column equated to a question from the survey, while each row equated to one specific survey. The first spreadsheet was specially formulated to record the response of each survey and sort the data by responses. An additional spreadsheet was added for the purpose of analyzing data. Two columns were created for each question. The first column was designated for the purpose of recoding the frequency and the second column was designated for tracking the relative frequency for that particular response. Each row stratified the responses

by different grocery store which included, “Albertsons”, “Ralphs”, “Trader Joes”, and “All Grocery Stores”. The graphs were analyzed and provided strong evidence and indication of what responses were common amongst the groups. The written information to the questions asked “why or why not” were recorded and explained in the ‘recommendations’ section of this project. The only information that was not recorded in the spreadsheet were the answers that the surveyors gave for his/her personal response to the number of calories, highest ingredient, etc; this information is not relevant, because of the numerous products that the surveyor could have used (which all have different amounts of calories, ingredients, etc).

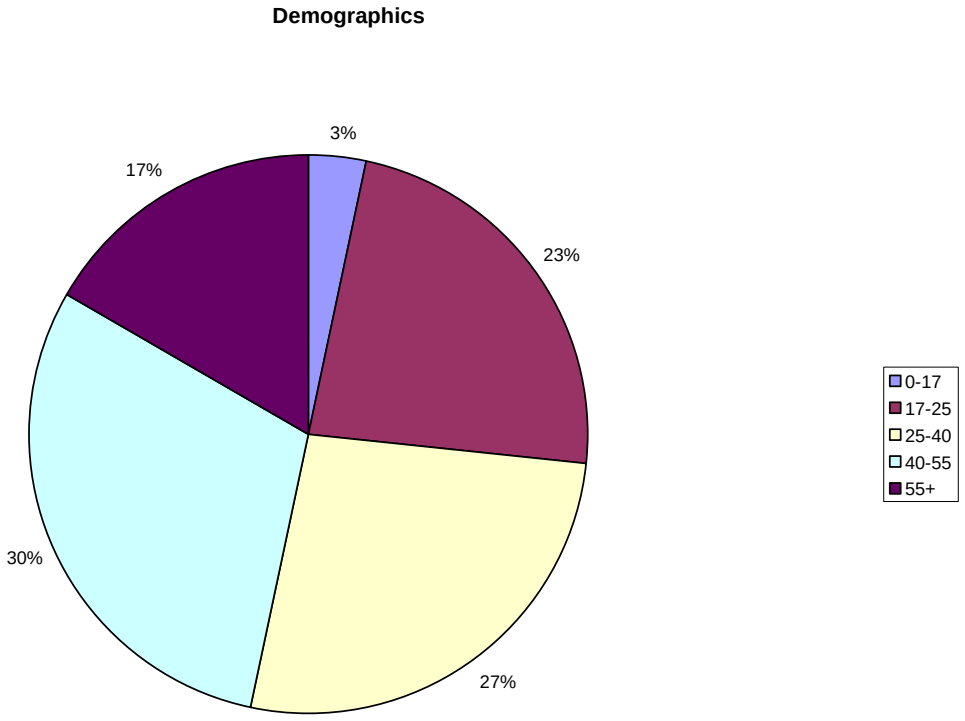
Chapter 4

Results

The purpose of this project was to develop a new brochure on how to read and understand nutrition facts labels. A survey was distributed to a group of people in San Luis Obispo, CA. to determine their knowledge of nutrition facts labels and if the brochure was helpful. The results will be used to determine if the new brochure was effective.

Demographics

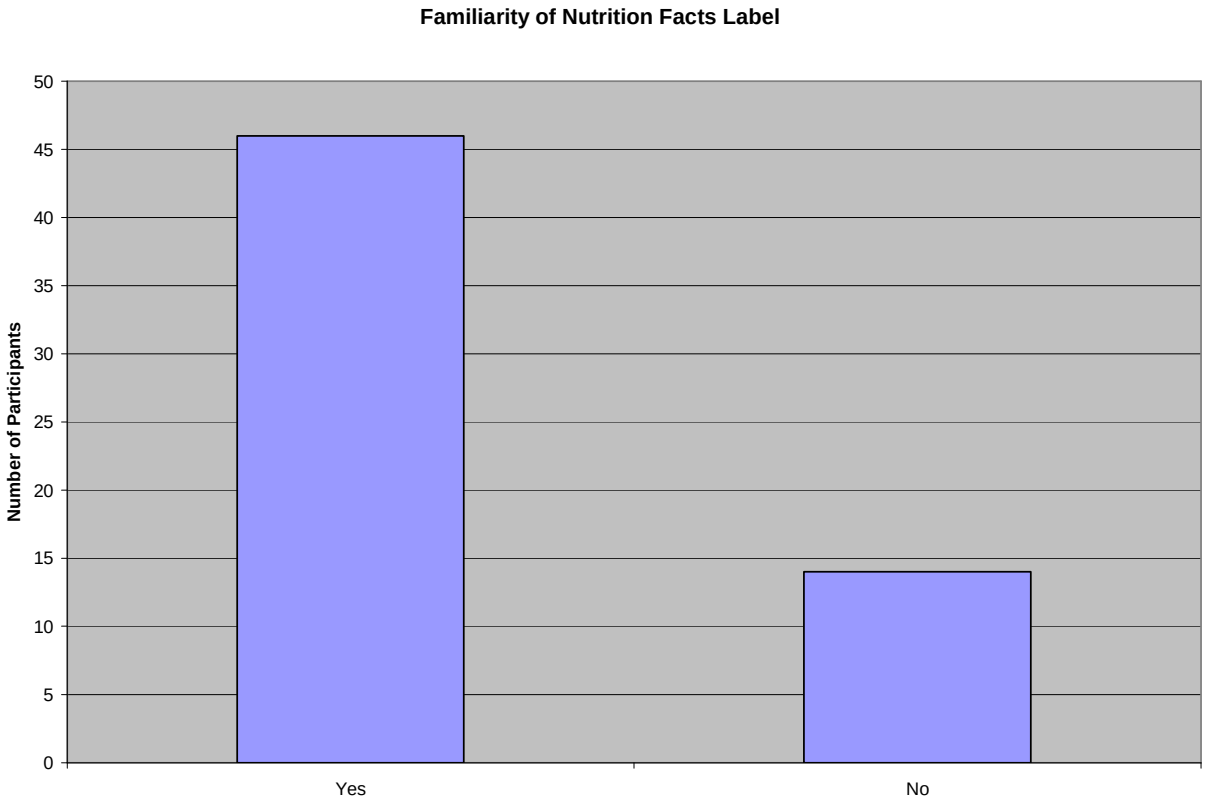
The sample size for the participants in the new brochure survey was 60 people. Compositionally, 2 were between the ages 0-17 (3%), 14 were between the ages 17-25 (23%), 16 were between the ages 25-40 (27%), 18 were between the ages 40-55 (30%), and 10 were 55 years and above (17%). See Figure 1.



Research Question #1: Are you familiar with a nutrition facts label?

The results that are presented in this section address the familiarity the population has with nutrition facts labels. Of the participants 46 (77%) felt they were familiar with nutrition facts labels and 14 (23%) felt they were not familiar with nutrition facts labels. See Figure 2.

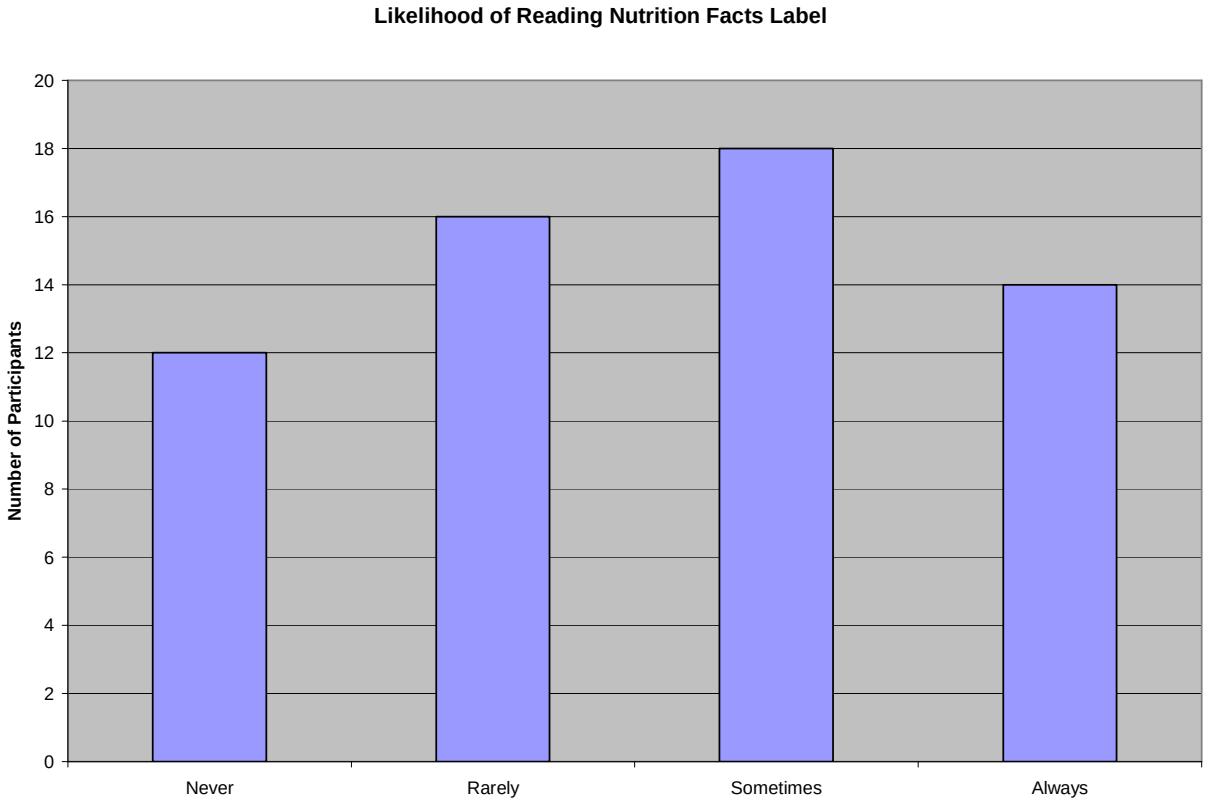
Figure 1: Familiarity with Nutrition Facts Labels (N=60)



Research Question #2: How often do you read nutrition facts labels?

The results in this section provides an indication how often the population read nutrition facts labels. Of the 60 participants, 12 (20%) stated they never read nutrition facts labels, 16 (27%) stated they rarely read nutrition facts labels, 18 (30%) indicated they sometimes read nutrition facts labels, and 14 (23%) always read nutrition facts labels. See Figure 3.

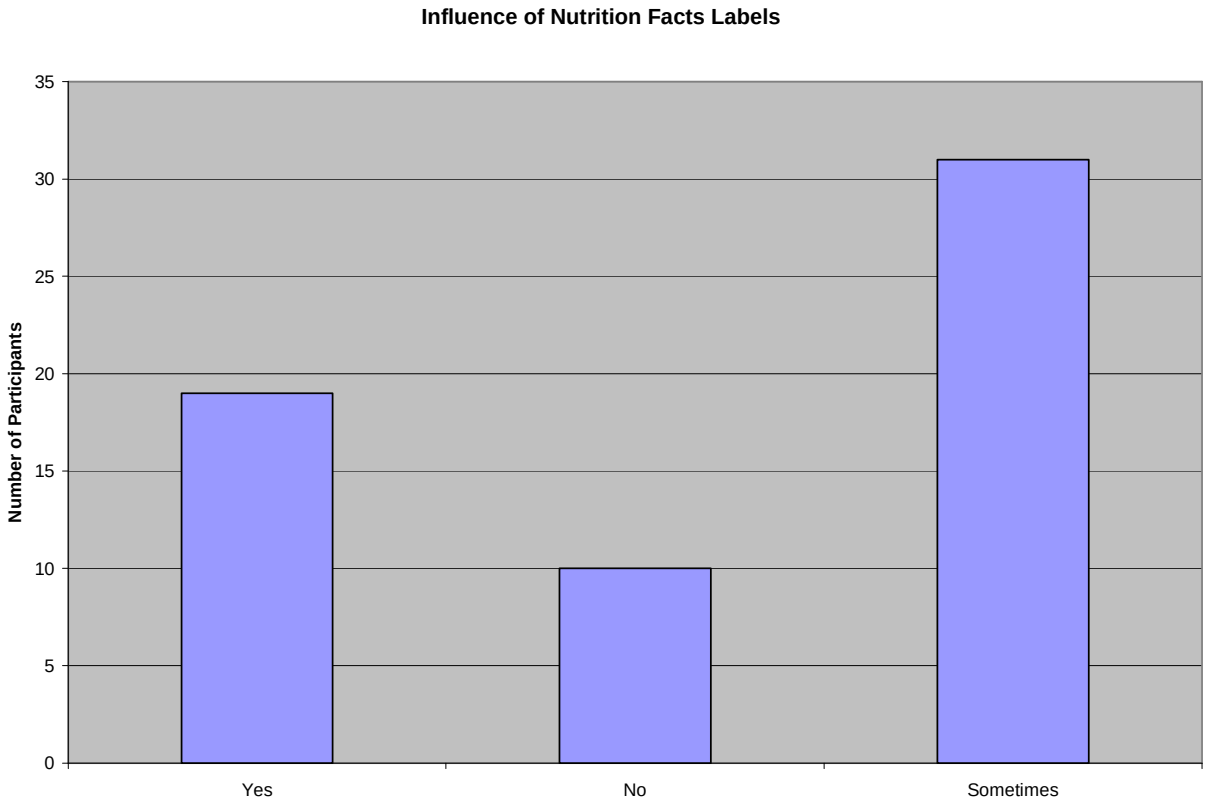
Figure 2: How often the population read Nutrition Facts Labels (N=60)



Research Question #3: Does the nutrition facts label influence your product choice?

Results from this section provide an indication of the influence nutrition facts labels have on purchasing food products. Of the study 19 stated the “yes” nutrition facts labels have an influence on their choice of food products, 10 indicated that “no” nutrition facts labels do not have an influence on their food purchases, and finally 31 stated that “sometimes” nutrition facts labels have an influence of what food they purchase. See Figure 4.

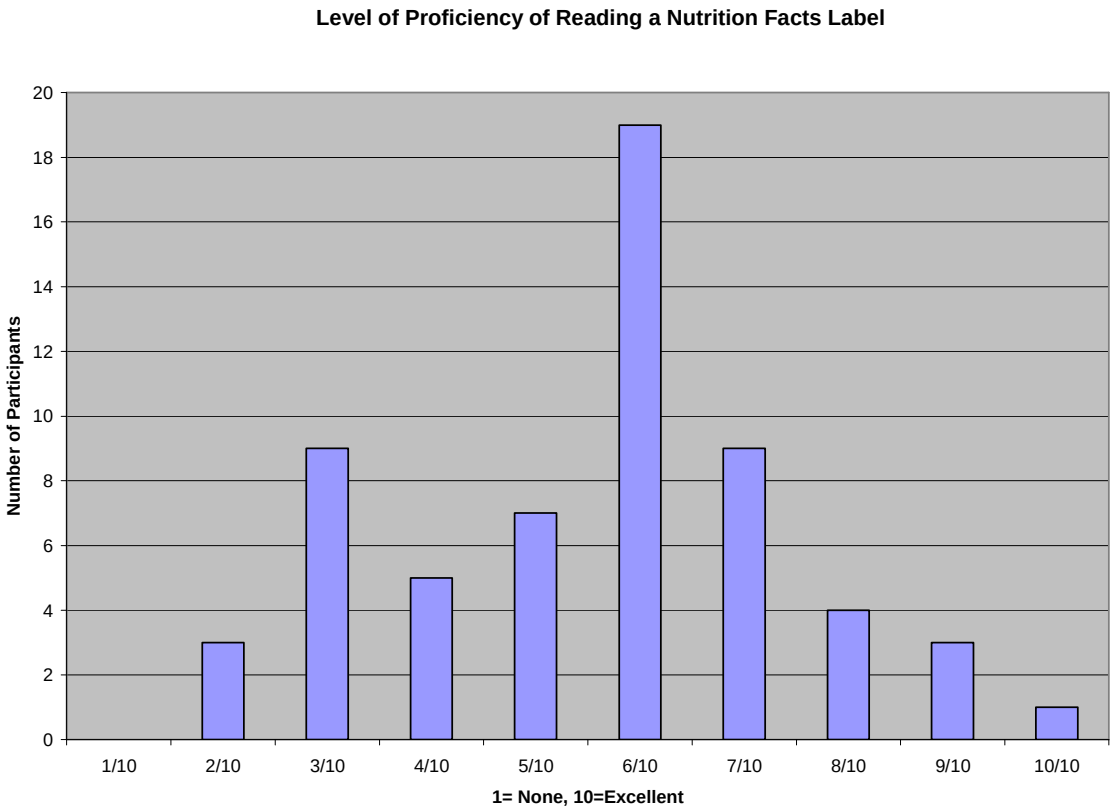
Figure 4: The influence of Nutrition Facts Label (N=60)



Research Question #4: On a scale 1-10 how would you rate your skills of using nutrition facts labels? (1=None, 10=Excellent)

Results from this section indicate the level of proficiency the population has on reading and understanding nutrition facts labels. One (0%) of the participants felt that they have no skill of reading nutrition facts labels, 3 (5%) indicate that they have a skill level of 2/10, 9 (15%) state that they have a proficiency of 3/10, 5 (8%) feel that they have a 4/10 proficiency, 7 (12%) state that they have a skill level of 5/10, 19 (32%) indicate that they have a 6/10 proficiency, 9 (15%) feel that they have a 7/10 proficiency, 4 (7%) indicate that they have a 8/10 proficiency, 3 (5%) people of the participants feel they have a 9/10 skill level, and finally 1 individual felt they have an "excellent" proficiency in reading nutrition facts labels. See Figure 5.

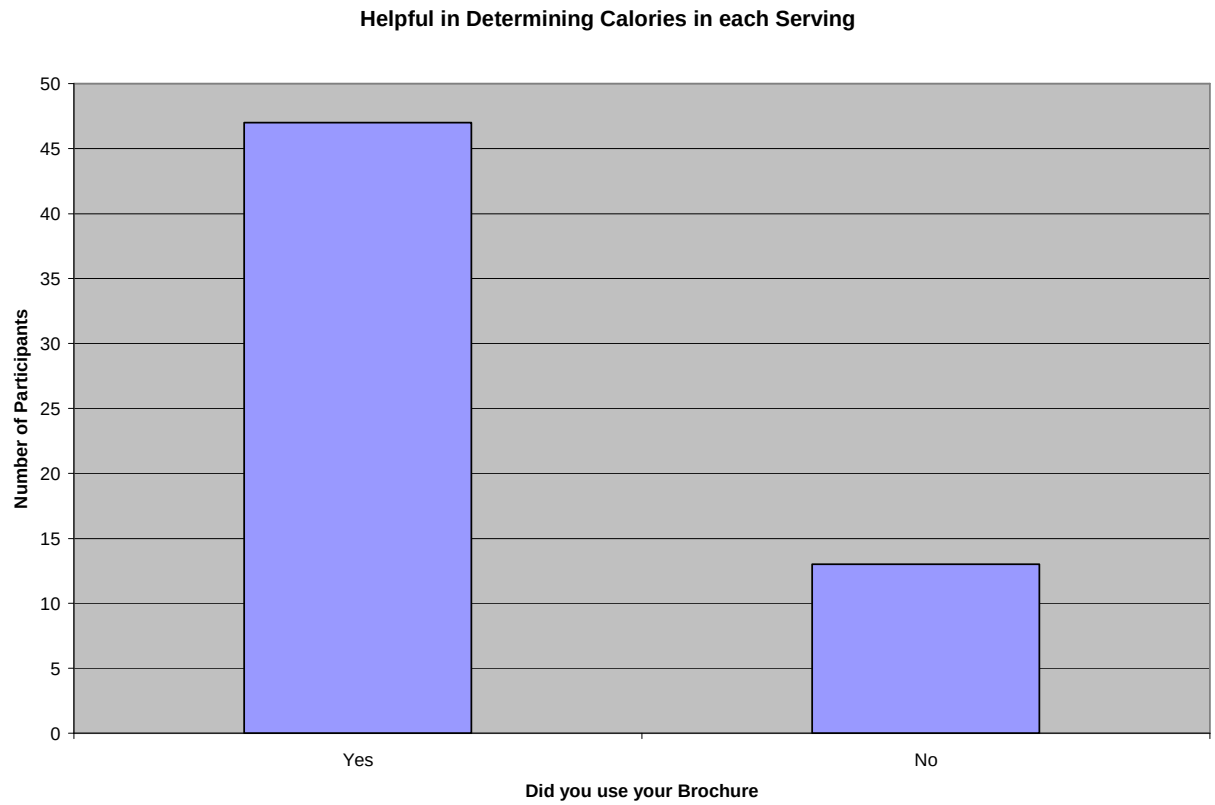
Figure 5: Proficiency of Nutrition Facts Labels (N=60)



Research Question #5: Choose your favorite box of cereal, locate the nutrition fact label and calculate how many calories are in each serving?

This section demonstrates how helpful the new brochure is in calculating the amount of calories in each serving. The questionnaire provides a section for the answer, if the brochure was helpful (yes or no), and why or why not? The author only wanted to research if the brochure was helpful in calculating the amount of calories in each serving. Of the population 47 (78%) found the brochure helpful and 13 (22%) did not find it helpful. See Figure 6.

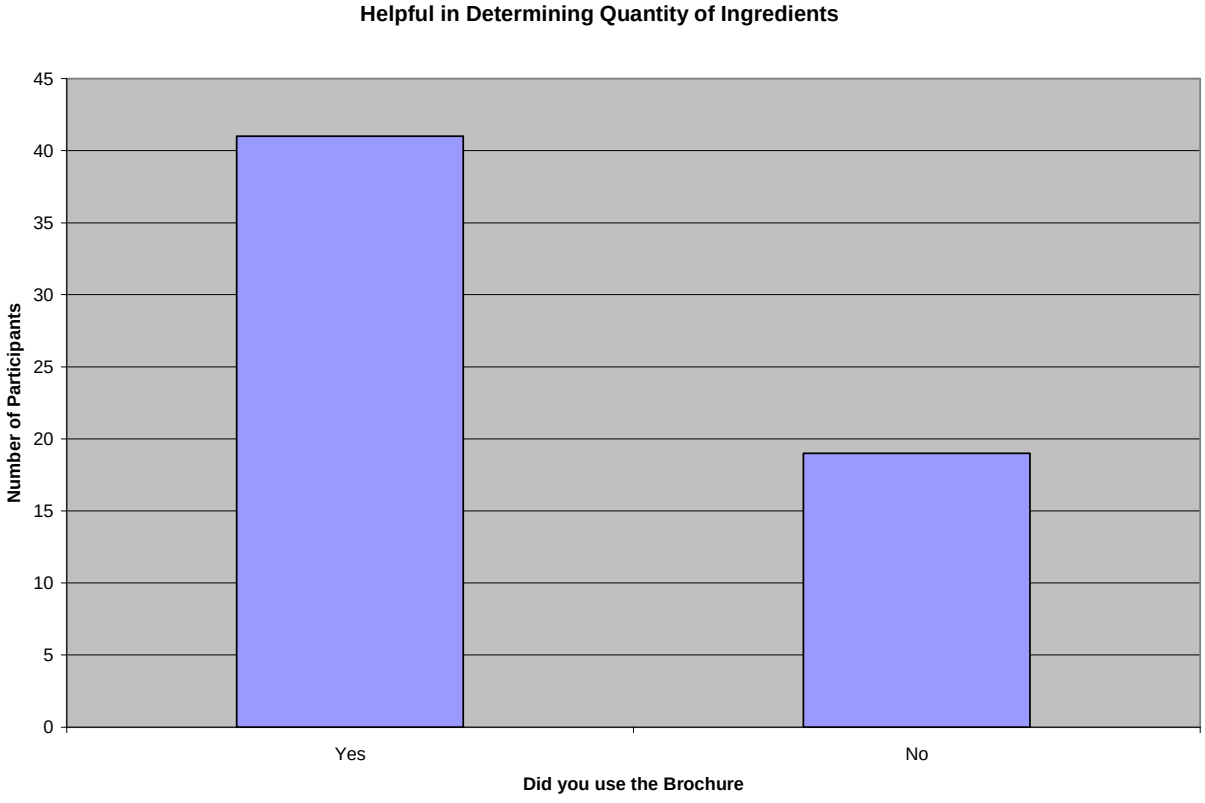
Figure 3: Helpful in Determining Calories in each Serving of a food product (N=60)



Research Question #6: On the same box of cereal locate the ingredient was used in the greatest quantity.

This section demonstrates how helpful the new brochure is in locating and understanding how to read the lowest to the highest amount of each ingredient there is in the food product in this case a box of cereal. The questionnaire provides a section for the answer, if the brochure was helpful (yes or no), and why or why not? The author only wanted to research if the brochure was helpful in reading the amount of ingredients in a food product. Of the 60 participants 41 (68%) found the brochure helpful and 16 people (27%) found it not to be helpful. See Figure 7.

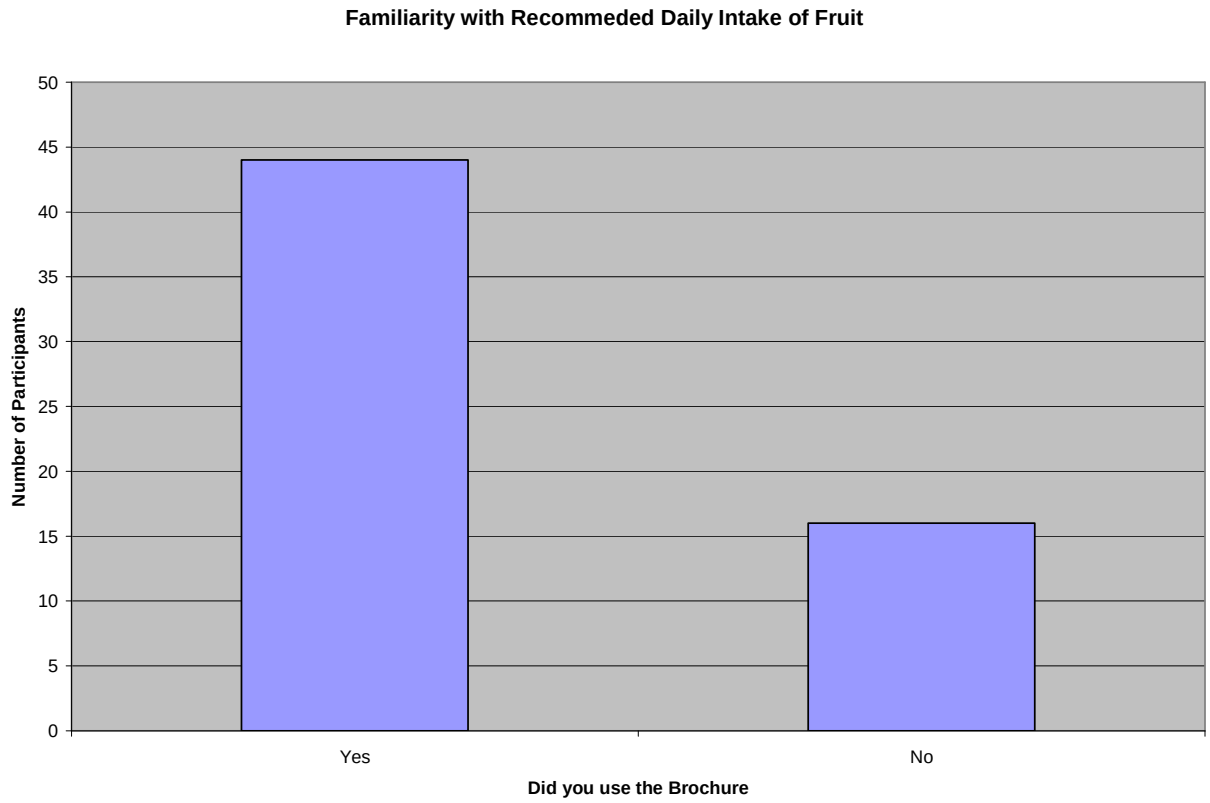
Figure 4: Helpful in determining the quantity of ingredients in a food product (N=60)



Research Question #7: If you consume an apple and a pear, how many servings of fruit do you need to satisfy your recommended daily amount?

This section was designed to research if the brochure is helpful in educating the population what the daily recommended food group intake for an individual. The survey provided a box for the answer and a place to indicate if it was helpful or not. The author feels the most important part of this question is if the brochure helped the individual. Of the 60 participants 44 (73%) participants found the brochure helpful and 16 (27%) not helpful. See Figure 8.

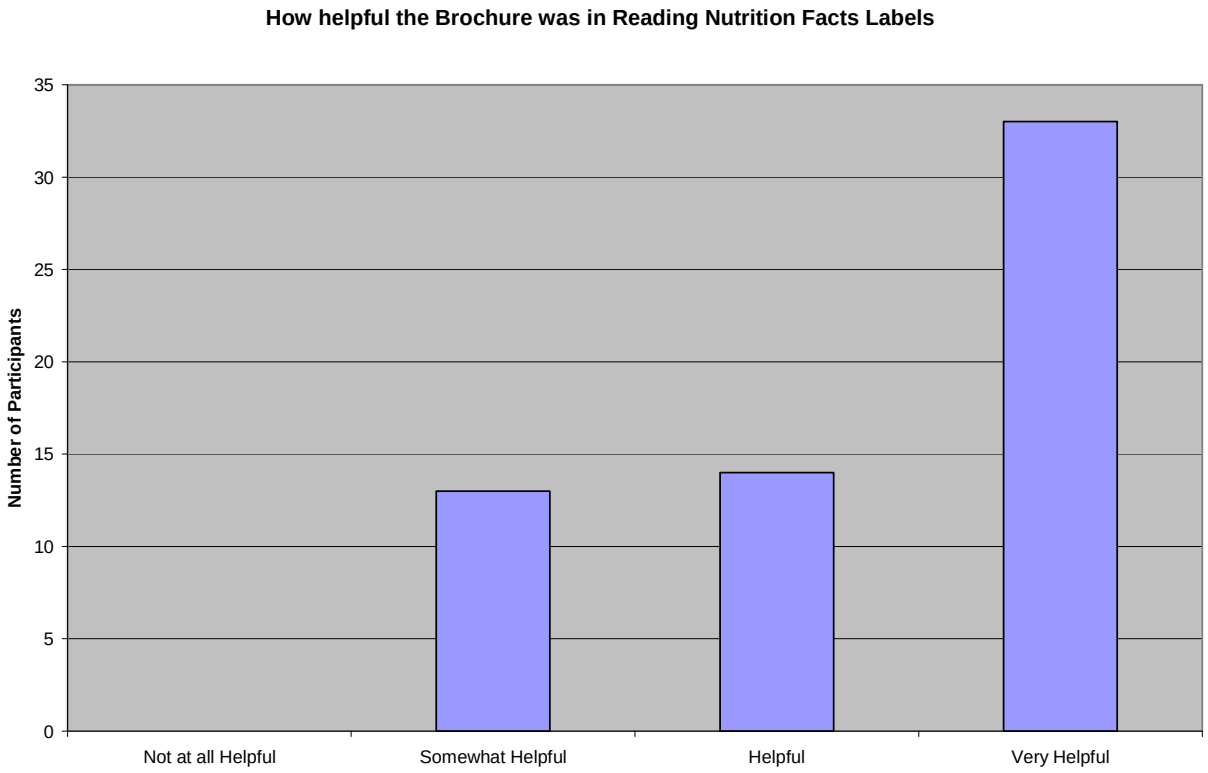
Figure 5: Familiarity with Recommended Daily Intake according to the Dietary Guidelines for Americans (N=60)



Research Question #8: How helpful was this brochure in reading nutrition facts labels?

This section was created for the author to research the level of efficiency of the brochure. None (0%) of the participants found the brochure to not at all helpful, 13 (22%) found the brochure to be somewhat helpful, 14 of the participants found the brochure to be helpful (23%), and 33 of the population found the brochure to be very helpful in reading nutrition facts labels See Figure 9.

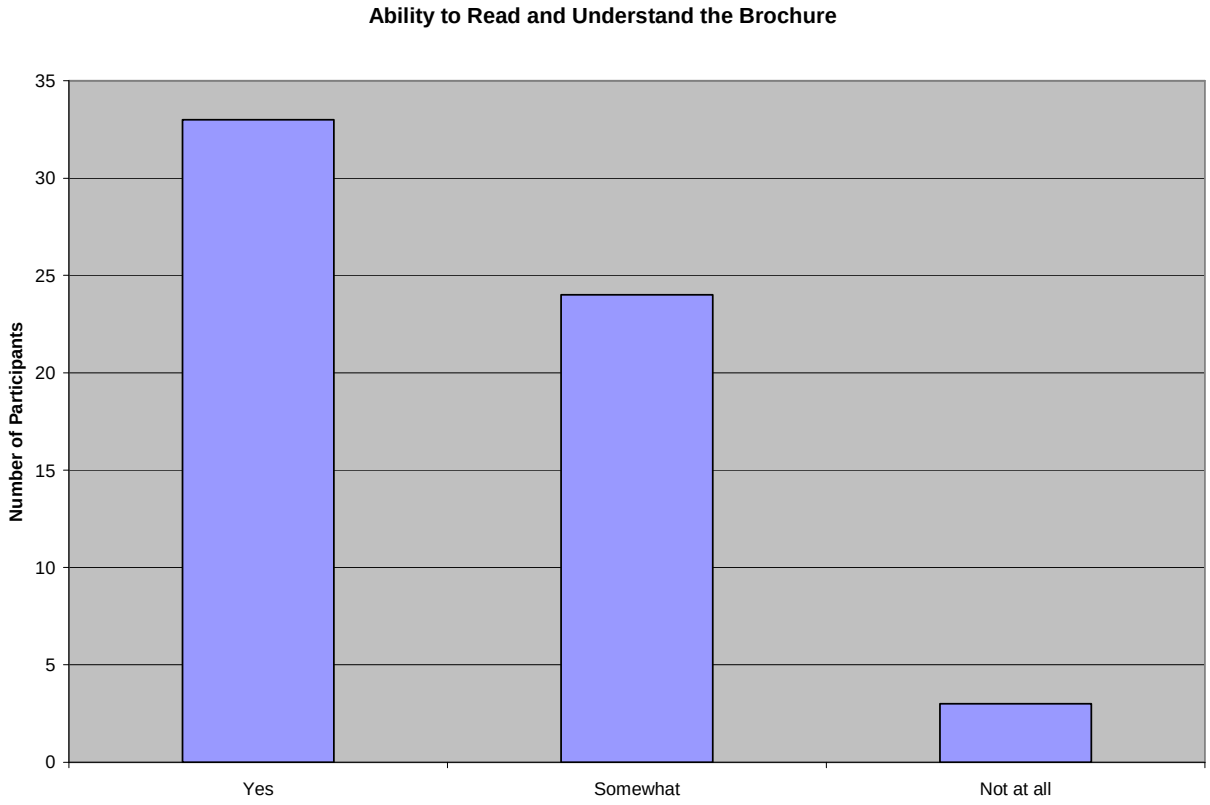
Figure 6: Efficiency of the Brochure in Reading Nutrition Facts Labels (N=60)



Research Question #9: Did you find the brochure easy to read and understand?

This section was designed to educate the author if the brochure was created easy enough for the population to read and understand. Of the population 33 (55%) stated “yes” the brochure was easy to read and understand, 24 (40%) stated the brochure was somewhat easy to read and understand, finally 3 (5%) felt the brochure was not easy to read and understand. See figure 10.

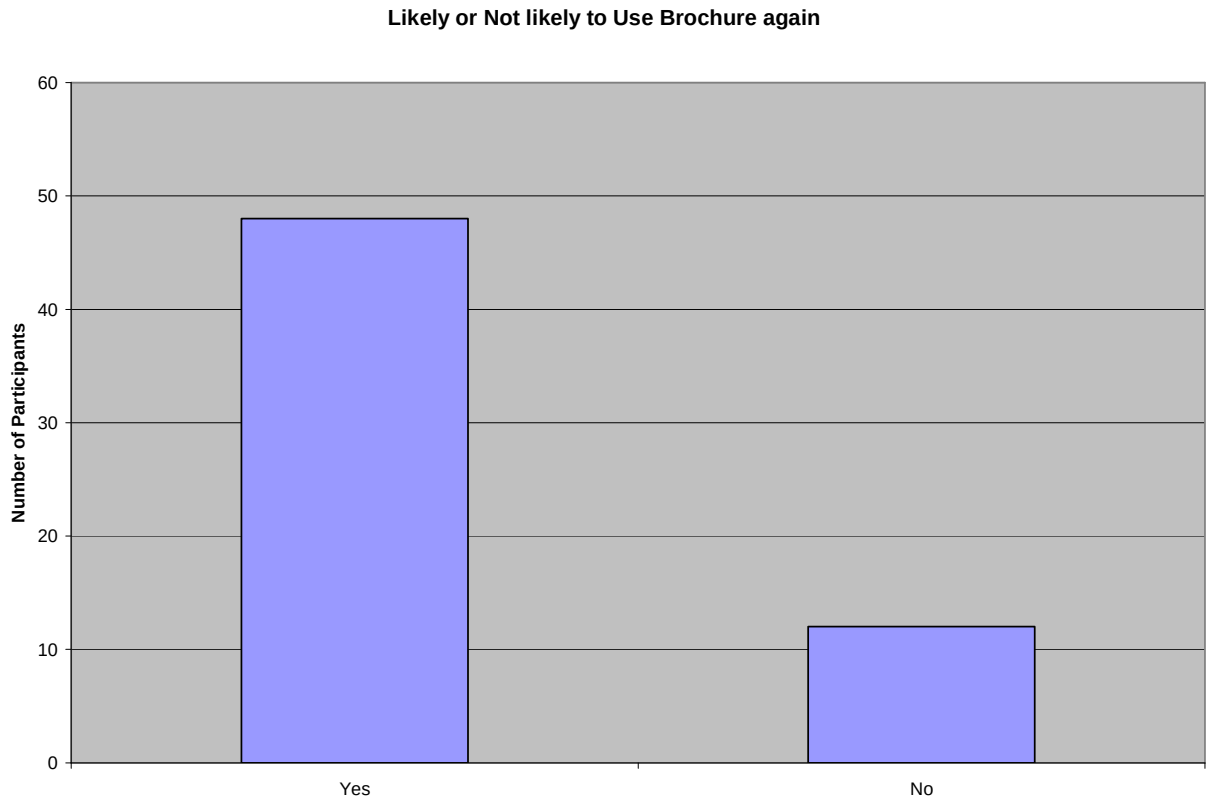
Figure 7: Ability to Read and Understand the Brochure



Research Question #10: Would you use this brochure again when grocery shopping?

This section was designed to let the researcher know if the brochure served a purpose in educating the population on how to read and understand nutrition facts labels and if the brochure was useful enough to use it again when grocery shopping. Of the respondents 48 (80%) stated that they would use the brochure again when grocery shopping, and 12 (20%) indicated that they would not use the brochure again. See Figure 11.

Figure 8: Likely or not likely to use the Brochure again when Grocery Shopping



Summary of Results

Based upon the responses from the San Luis Obispo, CA respondents, it indicated that they found the brochure to be helpful when grocery shopping and they would use the brochure again. The participants also found the brochure easy to use which made it effective when calculating the amount of calories, understanding the lowest to highest amount of ingredients in a food product, and being familiar with the daily recommended daily intake for an American.

Chapter 5

Conclusion

Based upon the results of the new brochure on how to read and understand nutrition facts labels, there is strong evidence that supports the need for the development of a new updated brochure for reading nutrition facts labels. The results also indicated that there is need to add more vital information for the public about nutrition, such as, the recommended daily intake. In addition, there should be more information about nutrition facts labels. In an example, you can use the brochure to read the highest to lowest quantity of an ingredient in a food product.

The new brochure on how to read nutrition facts labels must include all the vital information that can be used to be most effective to the American population. The brochure should not only be updated, but it should also be offered to the public in grocery stores. Therefore, if the brochure is offered in grocery stores, this could encourage the population can to sue them.

Recommendations

This project certainly outlines the recommended material that needs to be implemented in the new brochure on how to read and understand nutrition facts labels. The author recommends creating a brochure with the vital information on dietary recommendations and other information that was left out of the old brochure. In an example, the brochure did not have the new food pyramid, to encourage the population of proper intake of all food groups. The author also recommends including a section in the inside of the brochure on how to read the ingredients on a nutrition label. The ingredients panel has a lot of useful information for the public, such as, what the highest and lowest ingredient in the food. This can be helpful to the population, for example,

if a person wants to get the best fruit juice in order to receive the fullest nutrients, they would need to choose one that does not have water as the highest ingredient, because you do not get high nutrients from water.

Also, the author recommends that the brochure should have a more “eye-catching” face cover, which includes bright colors and a highlighted title “Guide to Reading and Understanding Nutrition Facts Labels.” The purpose of this project was to see if people would use a brochure on how to read nutrition facts labels and it was proven that they would, the author highly suggests that this be offered for the everyday grocery shopper.

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