The purpose of this study was to develop and evaluate a culturally appropriate supermarket nutrition education program for Mexican-Americans in the Northwest. The program was targeted at parents of young children.

The Health Belief Model provided the basic framework to identify factors that would motivate Mexican-Americans to change their behavior. Use of the model indicated that focusing on the health of young children could provide the motivation needed to initiate behavior change. Additional culturally appropriate motivators identified by the model were: knowledge about diet and health, incorporating language specificity or using Spanish, focusing on the importance of the family orientation, emphasizing healthy traditional foods, and providing a chance to become familiar with new products.
A 15 minute slide/tape program "Compre Comida Saludable" (Buy Healthy Foods) which was based on a supermarket setting was developed. The key concepts of the program were (1) to strive for balance, variety, and moderation in the diet; (2) to make low-fat food choices; and (3) to make economical food choices. These messages were chosen based on a review of the literature and a roundtable discussion. The roundtable discussion was with professionals working with the Hispanic population and was held in Hood River, Oregon.

Three workshops were presented to a total of 37 Spanish speaking participants (3 males, 34 females) of the Special Supplemental Food Program for Women, Infants, and Children (WIC) in Woodburn, Oregon. Each 50-60 minute workshop included Mexican music, a modified traditional drink, a pre-test, the Compre Comida Saludable slide/tape show, and a group discussion. The average age of the participants was 25± 4.9 years. The average time participants had been in the United States was 9.3± 8.8 years. Ninety percent of the participants preferred to speak Spanish. Nineteen of the mothers completed a 10-15 minute follow-up phone post test 3 weeks after attending the workshop.

The pre-test included questions concerning: 1) knowledge of economical food choices, and 2) their child’s fat consumption behavior. The post-test included questions on: 1) participant’s attitudes towards diet and health, 2) knowledge of economical food choices, 3) balance of child’s diet, and 4) changes in child’s fat consumption behavior as a result of attending the workshop.
The results of this study indicate that conveying a connection between the health of children and their diet motivates Mexican-American mothers to improve the diets of their children. Eighty-four percent of the WIC mothers indicated that they had made changes in their child's diet as a result of the workshop.

Evaluation of the "Compre Comida Saludable" program indicates it was effective in communicating information about nutritious and economical food choices. All (100%) of the participants indicated in the post-test phone call that the program had helped them plan more nutritious meals for their families. Many mothers reported making changes in fat consumption behavior. After the workshop, 94% reported removing the fat from hamburger; 79% of those who had not previously removed skin from chicken served to children reported doing so; 37% indicated serving lower fat milk to their children; and 44% of those who had previously used lard stated they had switched to vegetable oil.

Even though the participants' economical food choice knowledge pre-test scores were high, all participants indicated that the workshop had helped them to save money. A statistically significant (p < .001) difference was found between the knowledge pre-test and knowledge post-test on economical food choices.

A supermarket tour was developed to reemphasis the messages of the slide/tape show. It provided the chance for the participants to gain hands-on experience reading food labels, to become more familiar with the variety of food choices available to them, and to develop point-of-purchase decision making skills. Two of the WIC mothers attended the supermarket tour. Their responses indicated that the tour helped to clarify workshop messages. The likelihood that the
supermarket tour increased positive food shopping behavior change was indicated by several activities of the participants. The most important was that participants could verify that they were making healthy food choices for their child (once they had decided to try to include healthier choices in their child's diet).

In addition to being beneficial to new immigrants, the Compre Comida Saludable workshop can serve as a possible starting point for nutrition education for all Mexican-American families who speak Spanish. It could then be followed by additional nutrition education programs. Because low vegetable consumption for children was found, a program which emphasizes the importance of vegetables for children may be beneficial. A label reading workshop, a low-fat cooking class or a supermarket tour could also be included depending on the availability of facilities and Spanish speaking personnel.
Culturally Appropriate Supermarket Nutrition Education
For Mexican-American Families.

by

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CULTURALLY APPROPRIATE SUPERMARKET
NUTRITION EDUCATION FOR MEXICAN-AMERICAN FAMILIES

INTRODUCTION

It is widely accepted and scientifically established that diet influences health (US Department of Health and Human Services, 1988). Major health problems of the United States population have been linked to dietary intake. The most prevalent of these are cardiovascular disease, obesity, diabetes mellitus and high blood pressure. Government agencies have established dietary guidelines which recommend changes in the American diet meant to reduce the incidence of these diseases (US Department of Agriculture and US Department of Health and Human Services, 1990). The diet-related health problems which affect all Americans are even more prevalent in the Hispanic population (Samolsky et al., 1990). The Hispanic diet is a major factor influencing the high incidence of these diseases.

The Hispanic population has experienced dramatic growth in the last twenty years. Predictions indicate that by the year 2020 they will be the nation's largest minority group (Hyland, 1989; Exter, 1987). This increased growth has also started to take place in Oregon and the Northwest. The Oregon State University Extension Service has identified Hispanics as an important target audience for foods and nutrition programming. At this time, few county Extension offices are conducting such programming. Nutrition education programs for Hispanics should be culturally relevant. Researchers have realized that simply translating materials designed for
other groups is not effective and runs the risk of missing key cultural aspects (Marín and VanOss Marín, 1991).

A literature review and needs assessment with Hispanic professionals in Hood River, Oregon suggested that primary consideration should be given to the following characteristics of the population: low education, low literacy, and low income. (See appendix A for questions and responses). In addition, cultural considerations such as family unity, the health of the child, language appropriateness, and emphasis on healthy traditional foods would increase the chance of success in reaching the Hispanic population. The literature also indicates that Hispanics have a need for nutrition education in the areas of low-fat food alternatives and balance of food group consumption (Stern et al., 1984).

Recent developments in the field of nutrition education have called for the use of a theoretical framework to delineate appropriate points of intervention when designing effective educational programs (Glanz et al., 1990).
Purpose

The purpose of this research was to develop and evaluate a culturally appropriate nutrition education program based on a theoretical framework for Hispanic audiences in Oregon.

Research Questions

The research questions were:

1. Can a culturally appropriate workshop convey that diet is an important factor in optimizing health of families?

2a. Can a slide show effectively convey information about appropriate, nutritious food choices?

2b. Can a slide show effectively convey information about economical food choices?

3. Can a follow-up supermarket tour increase the likelihood of food shopping behavior change?
Definitions

"Hispanic" is a general term which refers to many sub-populations with origins in Mexico, South America, Central America, the Caribbean, and Spain. The danger of using this term is that, although there are similar characteristics among the sub-populations, there are also differences. In the past much of the diversity between the sub-groups has been overlooked. Making sweeping generalizations about Hispanics from information gathered on one sub-group must be approached with caution.

Past researchers have used both the general term "Hispanic" and the specific sub-population name interchangeably. In the review of literature, I have used the terms which the researcher chose to use. During the beginning stages of our research, we were unsure which sub-population of the Hispanics would be involved in this study. Recognizing the problems of past generalizations, the term "Hispanic" will be used when there is uncertainty about sub-population identity.

Because the population which participated in this study was predominantly Mexican-American, this term will be used in discussing results from this study.
REVIEW OF THE LITERATURE

Demographics of the Hispanic Population

According to the 1990 Census, there are over 22 million Hispanics in the United States today. It is projected that this number will double in the next 30 years (García, 1991). The growth rate for the Hispanic population between 1980 and 1988 was 34%, five times the growth rate for non-Hispanics (García, 1991; Valdivieso and Davis, 1989). Northwest Hispanics have grown at an even faster rate. Even though Hispanics make up only 4% of the total Oregon population, the number of Hispanics has almost doubled since 1980 (U.S. Department of Commerce, Census Bureau, 1980, 1990). In some non-metropolitan counties in the Northwest, Hispanics make up 15% of the population (Cook, 1986). The Hispanic population of Oregon is also concentrated in a few counties: Malheur county where 19.8% of the population is Hispanic, Hood River 16.3%, Morrow 10.8%, Jefferson 10.6%, Umatilla 9.0%, Yamhill with 6.3%, Washington 4.9%, and Wasco 4.6%, (US Department of Commerce, Bureau of the Census, 1990b).

The U.S. Hispanic population is made up of many sub-populations, with origins in Mexico, South America, Central America, the Caribbean and Spain. Mexican-Americans are the largest group and make up approximately two-thirds of the United States Hispanic population (Kumanyika, 1990; Bean and Tienda, 1987).
In Oregon, Mexican-Americans make up three-fourths of the Hispanic population (US Department of Commerce, Bureau of the Census, 1990a).

According to researchers, the major factors which contribute to the rapid growth of this population are: 1) the young age of the population, 2) a large family size, 3) a high fertility rate and 4) continued immigration (García, 1991; Hyland, 1989; Valdivieso and Davis, 1989).

The U.S. Hispanic population is predominately a young one. The median age in 1982 for Hispanics was 24.1 years old, compared to white non-Hispanic of 32.1 (García, 1991). This young median age contributes to the larger family size of Hispanics. Hispanic families continue to be larger than non-Hispanic families (García, 1991). In 1988 slightly more than 25% of Hispanic families consisted of five or more persons, whereas only 13% of non-Hispanics were in this range.

Hispanic women have more children on the average than non-Hispanic whites. The birthrate for Hispanics is 2.9 in comparison to 1.7 for non-Hispanic whites; a birthrate over 2.1 results in population growth (Hyland, 1989). In 1980, women of Hispanic origin had a 29% higher fertility rate than non-Hispanic white women, an increase since 1970 of 8%.

Hispanics continue to immigrate to the United States in large numbers. This continual immigration for political and economic reasons influences the rate of growth of this population (García, 1991).

Special conditions exist in the Northwest which are causing the Hispanic population to grow more quickly here than in other parts of the country. Cook
(1986) indicates that in addition to the young age and high fertility rate, migration into the area is accounting for the fast increase in population. She states that the Northwest agricultural economy has moved from rangeland to more labor intensive crops such as asparagus, melons, and orchard crops. This change in crops requires a labor intensive work force. Cook (1986) indicates that in 1980, 16.2% of Hispanics in the Northwest worked in agriculture, in comparison to 1.9% of non-Hispanics. She also adds that once migration into the area to supply the needed work force occurs, a "settling out" phenomena has resulted. Instead of moving on, Hispanics become permanent residents in the Northwest (Cook, 1986).

Additional statistics which help to understand the needs of this minority group include education, employment, and poverty rate. Educational attainment strongly influences an individual's and thus a group's ability to compete in the labor market (García, 1991). In 1988, 51% of Hispanics, 25 years and older, had completed 4 years of high school or more, compared to 78% for non-Hispanics. The percentage of Hispanics completing 4 or more years of college was 10% compared to 21% for non-Hispanics (García, 1991). The high school dropout rate is 40% for Hispanics compared to 18% for non-Hispanics (García, 1991). Weyer (1988) indicates that poverty cycles and cultural differences influence the low educational achievements.

Conversely, Valdivieso and Davis (1989) state that Hispanics are "handicapped by low levels of education and ethnic discrimination. They face a poverty cycle that will be increasingly difficult to break unless actions are taken".
This effect is evident in an examination of Hispanic employment figures. Hispanics are employed in many fields and the traditional view of Hispanics as primarily farmworkers is being challenged, although a larger percentage of Hispanics are employed in compared to the general population. About 9\% of Hispanic men work in farm related work in comparison to 3.7\% of non-Hispanic men. Only 1.5\% of Hispanic women work in farm work. More significant than the field of work is the median earnings.

Hispanics earn considerably less than the general population. In 1988 Hispanic women’s median earnings were $8,554 yearly compared to non-Hispanic women’s earnings of $10,745 (García, 1991). The median earnings for Hispanic males in 1988 was $10,850 in comparison to $19,508 for non-Hispanic males.

Poverty rates are also very reflective of the group’s economic well-being. In 1988 23.5\% of Hispanic families lived in poverty compared to 9.7\% of non-Hispanics (García, 1991).

The challenges these statistics present for social programs are large. Unemployment, low earnings and poverty influence a group’s needs. Professionals implementing social programs must take a two track approach: 1) meet the current needs of this growing population by designing programs which take into account their current circumstances, and 2) agitate to change the very conditions which make some of the programs necessary. Because of Hispanics fast growth, it is critical that they become a functioning and integral part of society (García, 1991).
Health Problems Related to Food Intake

Hispanics in the United States suffer from two types of diet-related health problems: (1) those related to dietary fat intake, such as cardiovascular disease, obesity, and diabetes mellitus (Samolsky et al., 1990; Haffner et al., 1986) and (2) those related to nutrient deficiencies, which do not always manifest themselves as specific health problems.

Cardiovascular disease is the leading cause of death in the United States, (Fanelli-Kuczmarski and Woteki, 1990) and accounted for 48% of all deaths in 1985 (McNamara, 1990). Studies from Texas and California's mortality data indicate that cardiovascular disease is the number one cause of death in the Mexican-American population (Hazuda et al., 1983). Obesity and diabetes, which are health problems themselves, also increase the risk of cardiovascular disease.

Obesity is more common among Mexican-Americans than among the general population (Samolsky et al., 1990; Stern et al., 1982; Roche et al., 1990; Roche, 1984). Using the Hispanic Health and Nutrition Exam Survey (HHANES) data, Fanelli-Kuczmarski and Woteki (1990) found that 41.6% of Mexican-American women were overweight, (compared to 23.9% overweight for non-Hispanic women) and 30.9% of Mexican-American men (compared to 24.2% for non-Hispanic men). In addition, age-adjusted prevalence of obesity within the Hispanic population was higher for women than men (Fanelli-Kuczmarski and Woteki, 1990).
Roche et al. (1990) found that for almost all age groups, Mexican-American children were overweight. Here also there were larger differences for females then males. These data suggest that Mexican-American children tend to have greater amounts of total body fat than white children (Roche et al., 1990). Because differences in weight/height$^2$ can result from either a high lean body mass, or a high adipose body mass, some researchers use skin fold thickness comparisons to measure body composition (Stern et al., 1981). Ryan et al. (1990b) found that subscapular and triceps skinfold thicknesses were greater for Mexican-American children then for Black or White children for most ages between 8 to 18 years. Baumgartner et al. (1990) also found that triceps skinfold thicknesses were higher for Mexican-Americans after 8 years of age. In comparing socioeconomic factors, they found that poor teenage Mexican-American girls had significantly greater mean skinfold thickness then non-poor Mexican-American girls (Ryan et al., 1990a).

Another important factor is the location of adipose tissues. Unfavorable body fat distribution has been associated with coronary heart disease, non-insulin dependent diabetes (NIDDD), and gallbladder disease (Haffner et al., 1989). Centralized adipose tissue is even more prevalent in Hispanics then in non-Hispanic whites (Haffner et al., 1986). Centralized adiposity in Mexican-American children has also been studied by Baumgartner et al. (1990), who found that fat distribution becomes more centralized in Mexican-American boys after 13 years of age.

Diabetes has been shown to be 2-3 times more prevalent for the adult Mexican-American population than for the White or Black populations (Samolsky et
al., 1990; Stern et al., 1981; Stern et al., 1984). The San Antonio Heart Studies data found that non-insulin dependent diabetes (NIDD) was higher for Mexican-Americans than for Anglos (Stern et al., 1984). Mexican-American men have diabetes rates which are twice as high as Anglo men, although the rates among Mexican-American women are only slightly higher than Anglo women (Stern et al., 1984). Data from HHANES for self-reported diabetes showed 6.8% of Mexican-American men and 7.6% of Mexican-American women had diabetes (Perez-Stable et al., 1989). This compares to 2.9% for men in the general population and 3.8% for women reported in National Health and Nutrition Examination Survey (NHANES II). As educational level increased there was significant decrease in age-adjusted self reported diabetes for women but not for men (Perez-Stable et al., 1989). Stern et al. (1984) found that Mexican-Americans of lowest economic status had an age-adjusted diabetes rate of 13.7% for men and 14.8% for women.

**Health Problems Related to Nutrient Intake**

There is evidence of nutrient diet-related health problems in the Hispanic population according to Chase et al. (1971) who found low serum vitamin A levels in 55% of children. In addition, 15.6% had hematocrit and hemoglobin values below the 10th percentile for age. In a study of 175 Mexican-American preschool children, Acosta et al. (1974) found 47% of children had low hematocrit levels. More recently, HHANES data found no significant difference in impaired iron status
among Mexican-Americans, Non-Hispanic whites, and Non-Hispanic blacks, except in the 20-44 age group. Mexican-American women in this latter age group had a statistically higher prevalence of impaired iron status (Looker et al., 1989).

One indicator of adequate dietary intake is growth patterns of children. It is not clear if low growth attainment in the Hispanic population is related to dietary deficiencies or genetic differences. There is some evidence for both (Acosta, 1974; Fanelli-Kuczmarski and Woteki, 1990; Roche et al., 1990; Ryan et al., 1990a).

Dietary Intake of the Hispanic Population

Given the relationship between diet and health, studies on dietary intakes can provide valuable information. Although a diet may not be deficient enough to cause overt health problems, inadequate nutrient intake can result in subclinical symptoms.

Dietary analyses can be conducted in a variety of ways. The literature on Hispanic dietary intakes has mostly utilized the following methods: Recommended Dietary Allowance comparison, food group contribution, and food consumption data. By comparing recommended intakes, researchers can identify areas of deficiency or over consumption which may lead to health risks.
Recommended Dietary Allowance Comparison

An analysis of both macro and micro nutrient intake provides us with valuable information. The macronutrients of fat, protein and carbohydrates can be analyzed as a percent of daily calories. "Dietary Goals for Healthy Americans" recommend protein intakes of 12%, carbohydrate intake of 58% and a fat intake of 30% of calories (Select Committee on Nutrition and Human Needs/US Senate, 1977). Acosta et al. (1974) found protein intakes of Hispanics were at 11-12% of calories, carbohydrates at 46-54% and fat intake at 35-40% of calories. Newell et al. (1988) found that the carbohydrate contribution for Mexican Americans was 47.6% of the calories compared to 43.6% for whites. Protein intake was 16.6% for both groups, and fat intake was 35.1% for Mexican Americans and 37.9% for whites.

Vitamin and mineral intake can be compared to the Recommended Dietary Allowances (RDA) (Whitney et al., 1990; Harper, 1990). The RDAs were established as intake guidelines to meet the needs of most healthy people, and it is assumed that a significant shortfall in intake has negative overall consequences. Several researchers have reported a deficit in vitamin A intake in Mexican American diets. The Ten State Nutrition Survey (US Department of Health, Education and Welfare, 1972) found dietary intakes of vitamin A were below the RDA for a majority of the Hispanic population. The San Antonio Heart Study (Knapp et al., 1985) found that both Mexican-Americans and Anglos had low vitamin A intakes (61% of the RDA for Mexican-American males compared to 75% of RDA for
Anglo men). Mexican-American women consumed only 52% of the RDA for vitamin A, compared with 73% in Anglo women (Knapp et al., 1985). Acosta et al. (1974) found that 7% of children studied did not consume two-thirds of the RDA for vitamin A.

Acosta et al. (1974) also found that 29% of the Mexican-American children they studied did not meet two-thirds of the RDA for vitamin C. The San Antonio Heart Study (Knapp et al., 1985) and the Ten State Nutrition Survey (1972) both found intakes of vitamin C to be below the RDA.

Intakes of iron among Mexican-American children were very low in the Acosta study, with 44% of them not meeting the RDA (1974). The Ten State Nutrition Survey (US Department of Health, Education and Welfare, 1972) reported that a majority of the Mexican-American population fell below the RDA for iron intake.

Calcium intake was lower in the Mexican-American population than in the Anglo population (Knapp et al., 1985). Calcium intake was especially low among Mexican-American women, who consumed only 55% of the RDA compared with 67% for Anglo women. Eleven percent of the children studied by Acosta et al. (1974) did not meet two-thirds of the RDA for calcium. Newell et al., (1988) also found that calcium intake was low for Mexican American men.
Food Group Comparison

Murphy et al. (1990) used data from HHANES to analyze intake of food groups by children age 1-17 years. When comparing actual consumption to the daily food guide recommendations (Murphy et al., 1990), the meat group exceeded the recommended two servings per day for all ages. Although mean daily intake of the milk group met the recommendation for children under 12, it did not meet the recommended four servings for teenagers. Intake for the bread group was an average of three servings, one serving short of the recommended 4 per day. Four servings per day from the fruit and vegetable group are recommended, but intakes for all ages were less than two per day.

The new USDA Food Guide Pyramid (US Dept of Agriculture, 1992) recommends 6 servings of the breads group, 2 servings of fruits, 3 servings of vegetables, 2 servings from the meat group, and 2 servings from the milk group per day for young children. In light of these recommendations, Hispanic intakes for children fall even shorter on the breads group, the fruit group, and the vegetable group although intake of milk would be closer to the recommendations (Murphy et al., 1990). Dewey et al. (1984a) studied migrants and non-migrants of Mexican-American descent in California and found the following average daily intake for the two groups combined were: 4 servings of meat/protein, 3.1 servings of bread/grain, 1.8 servings of fruit, 0.55 servings of vegetables. This is additional evidence that the Hispanic diet consists of more than the recommended number of servings of meat but less than the recommended number of servings for grains, fruits, and vegetables.
Food Consumption Data

Food consumption patterns have been studied by a number of researchers. These studies indicate that Mexican-Americans consume products high in fat, especially saturated fat. Foods that contribute to the high fat and saturated fat diet for Mexican-Americans include: beef, lard, processed meats, whole milk, salad dressings, fast foods and hidden fats.

Delapa et al. (1990) studied food shopping patterns of Mexican-Americans. They found that San Ysidro, a predominantly Mexican-American community, had less healthy buying patterns than El Canyon, a predominantly Anglo community. Of all milk purchases, "less fat," skim, 1%, or 2% milk was bought 27% of the time by Mexican-Americans compared to 68% by Anglos. In the Mexican-American community, lard was bought for cooking 43% of the time versus 13% of the time in the Anglo community. Beef sales were higher in the Anglo community, and poultry sales were high in the Mexican-American community. In an analysis of which foods contribute to the fat intake of the population, Borrud et al. (1989) found that 43% of Mexican-Americans' fat intake was from meat, fish and poultry. Half of their saturated fat and most of their cholesterol was also from meat, fish or poultry.

Another method of studying food consumption patterns is to identify core foods in the diet (as determined by the frequency of use). Jerome (1980) indicates that a core food is a staple item, used at least three times per week. The study of Koehler et al. (1989) found that lard is a core food for 68% of Mexican Americans, butter and margarine for 66%, and salad dressing or mayonnaise for 45%. The significant staple core foods included eggs (48%), whole milk (57%), tortillas
(62%), breakfast cereal (60%), soda pop (74%), chips, and salty snacks (55%),
green chile (31%), and salsa (38%).

Frank et al. (1991) looked at fat and cholesterol avoidance patterns using a
Study of Children’s Activity and Nutrition fat-avoidance scale. They gathered
information on the frequency with which parents removed the skin from chicken, or
trimmed the fat from meat which they served to their children. They also
determined the type of milk, type of hamburger, type of fat/oil in cooking, type of
fat used in refried beans, and number of eggs served to their children. They found
that an average of 60% of the Mexican-American parents removed the skin from
chicken served to their children. Mexican-Americans served more whole milk, with
only 28% of Mexican-Americans serving low-fat compared to 60% of Anglo
parents. Vegetable oil was used by over 80% for both Mexican-Americans and
Anglos. Nine percent of Mexican-Americans used lard in cooking compared to 0%
Anglo parents; however, when making refried beans, lard was used by 27% of
Mexican-Americans and 36% of Anglos.

Changes in dietary patterns can also provide valuable information. One way
to study changes is to compare diets of immigrants from Mexico before moving to
the United States with their diets after living in the United States. A comparison
can also be done with the diets of U.S. born Mexican-Americans. Some researchers
have also looked at dietary habits of migrant Mexican-Americans (who have more
contact with Mexico) versus dietary habits of nonmigrant Mexican-Americans.
In a study of migrant versus non-migrant Mexican-American families, Dewey et al. (1984a) found that frankfurters were a frequently consumed meat: 3.2 times per week for migrants and 4.1 times per week for non-migrants preschool children. Eggs were consumed 4.7 times per week by migrants and 7.6 times per week by non-migrants. Beans were also consumed frequently by non-migrants, (5.2 times by migrants and 6.4 by non-migrants). Most migrant and non-migrant children ate corn tortillas and 47% ate high sugar breakfast cereals. In addition, whole wheat consumption was low for both groups and none of the children, migrant or non-migrant, consumed low-fat milk. Consumption of fruits and fruit juice by both groups was 13 servings per week, and average vegetable consumption was only 3.9 servings per week.

Vegetable and fruit intake for the migrant children was higher than for the non-migrant children. Migrants consumed 7.8 servings of fruits per week compared to 6.8 for non-migrants. Migrants’ vegetable consumption was 5.1 times per week compared to 2.8 for non-migrants. Thus migrant children consumed more vegetables, fruits, noncarbonated drink mixes, soft drinks and sweet rolls than non-migrant children and less eggs and frankfurters. Borrud et al. (1989) found that Mexican-Americans continued to use traditional foods such a tortillas or beans after arrival in the United States, but they also showed an increased consumption of beef. Their studies showed that 43% of fat intake is from meats.

Romero-Gwynn et al., (1992) in a study of dietary consumption of Mexican immigrants and Mexican-Americans, found both positive and negative changes
occurring in the diet. They found that consumption of white bread, margarine and 
butter, ready-to-eat breakfast cereals, vegetable salad, salad dressing, mayonnaise, 
vegetable oil, and Kool-Aid/Tang-type beverages increased after immigration. They 
found lard, Mexican cream, sopa de fideos (pasta and vegetable soup), boiled beans, 
atole (a milk-based beverage), agua fresca (fruit flavored water) decreased.

In Mexico, only 15% consumed white bread, which increased to 66% for 
immigrants, and 84% of Mexican-Americans. Where only 25% indicated cookies as 
a core food in Mexico, 66% of immigrants and 85% of Mexican-Americans ate 
cookies as a core food. Eight percent of immigrants consumed ready-to-eat cereals 
in Mexico, compared to 78% in the United States. In Mexico, 84% consumed 
boiled beans, compared to 71% of immigrants and only 42% of Mexican-American 
as a core food. Even though vegetables were consumed twice a week by 80% of 
immigrants, Romero-Gwynn et al., (1992) found a 12.5% increase for vegetables 
and a 13% increase for fruits. They found that the ways in which vegetables were 
consumed had changed; i.e., in Mexico vegetables were consumed in main dishes; 
whereas in the United States, vegetable salad consumption increased along with 
salad dressing, butter, and margarine. Fruits were consumed as aguas frescas at 
least 2 days a week by 62% of immigrants in Mexico, 41% after immigrating, and 
only 17% of Mexican-Americans. Lard was used by 67% in Mexico, 28% after 
immigration and only 12% of Mexican-Americans as a core diet item.
Nutrition Education

These studies suggest many ideas for changes needed in the Hispanic diet to optimize health: eating a lower fat traditional diet; substituting vegetable oil for lard; and using lesser amounts of oil in cooking (Harris et al. 1988). Nutrition education programs could promote low-fat dairy products, increased consumption of whole grains, vegetables and fruits.

Few nutrition education programs have been developed for Mexican-American audience. Evaluation of program impact has been limited.

Dewey et al. (1984a) suggests that nutrition education should reinforce most traditional food habits, such as a high value placed on complex carbohydrates, fresh fruits, and vegetables. It should increase familiarization with new food items, and emphasize low-fat dairy product, whole grains, and fruit juices instead of soft drinks. During their research, they identified these topics for nutrition education: infant feeding, familiarization with foods in supermarkets, economical food choices and weight control. They have conducted some nutrition education programs in migrant labor camps using the Basic Four Food Group and infant feeding.

Using focus groups, Ramirez (1979) concluded that a program to make Mexican-Americans more aware of the health risk of high blood pressure should be in Spanish, and focus on Mexican-American concern for family. Using this information he developed an educational program of three public service announcements called the Silent Killer.
Media habits and methods for obtaining information of a target group must be considered in choosing the appropriate media for an educational message. Guernica (1982) indicates that radio is quite popular for Hispanic population, covering 100% of the Spanish speaking population. He also indicates that print material can be used most effectively as a complement to a radio campaign.

The use of supermarkets as a nutritional education tool for reaching the general population has received much attention in the last few years. Americans shopped an average of 2.3 times per week at 145,000 grocery stores and 30,750 supermarkets or full-line grocery stores in 1991 (Borra and Wellman, 1991). Supermarkets have become important sites for nutrition education (Light et al., 1989). Reed indicates "that people make most of their nutrition decisions in the supermarket, so it makes sense to use the supermarket environment to teach nutrition" (DeMicco, 1988).

Behavioral Change

Bringing about positive change in dietary habits is the main goal of nutrition education. Because food habits are tied to personal and cultural identity they are not easily changed (Axelson, 1986). The Federal Interagency Committee on Human Nutrition Research (ICHNR) stated that nutrition research needs "to determine the most effective means of conveying information about the health impact of various dietary practices" (Sims, 1987). Thus nutrition educators must understand the
factors that influence behavioral change (Gillespie and Yarbrough, 1984; Contento and Murphy, 1990; Sims, 1981). Efforts to identify and have a positive influence on factors affecting dietary choices have brought together nutrition scientists and behavioral scientists. (Glanz, 1981; Smith and Lopez, 1991). As a part of this effort to increase effectiveness of nutrition education programs, the last decade has resulted in a call for programs based on behavioral change theories (Olson and Kelly, 1989; Saunders and Rahilly, 1990).

Kerlinger (1973) describes a theory as a set of interrelated definitions, concepts and propositions that present an organized view or interpretation of phenomena. Theoretical models help us to understand an event by organizing the principles and concepts of a relationship (Novak and Gowin, 1984). Behavioral change models can serve as a framework for understanding the factors involved in dietary change (Saunders and Rahilly, 1990).

Theories can help identify primary motivators for change which helps determine a suitable approach and educational message. (Saunders and Rahilly, 1990). It has also been suggested that some theories can help to identify barriers to change and to understand negative attitudes at the initial stage of intervention (Saunders and Rahilly, 1990). Thus, researchers agree that the use of theories in educational programs increase effectiveness by organizing the events involved in behavioral change (Smith and Lopez, 1991).
The Health Belief Model

The Health Belief Model (HBM) is an appropriate theoretical framework for predicting diet-related behavior change. This psycho-social model has been used as a major organizing framework for designing programs (Janz and Becker, 1984). The HBM was developed by Hochbaum and other social psychologists in the 1950's (Parcel and Meyer, 1978). The initial studies which gave birth to this model attempted to explain why some public health services (e.g. tuberculosis screening) offered during this time period were not utilized. The tuberculosis screening program was the first to be evaluated. This program provided free x-ray screening in mobile neighborhood units, yet only a few people chose to have the free X-rays. Hochbaum's 1952 study resulted in the identification of basic components of the health belief model (Rosenstock, 1990).

Components of the Health Belief Model

The Health Belief Model is organized into three areas: an individual's perceptions, likelihood of action, and modifying factors (Table 1).

According to the HBM, an individual's perception about the perceived threat of a disease is a key determining factor influencing health behavior. Perceived threat is a combination of two separate components: perceived susceptibility which is the "subjective perception of the risk of contracting a health condition", and perceived seriousness which involves the "feelings of the seriousness of contracting an illness or leaving it untreated" (Rosenstock, 1990).
Once a perceived threat exists, the likelihood of action is determined by perceived benefits (which are "beliefs regarding the effectiveness of the various available actions in reducing the disease threat") weighed against the perceived barriers (defined as "the potential negative aspects of a particular health action") (Rosenstock, 1990). Another factor which influences the likelihood of action is self efficacy which is " the conviction that one can successfully execute the behavior required to produce the outcome" (Bandura, 1977). This component was added to the model by Bandura in 1977.

Researchers have also identified modifying factors which influence health behavior. These include demographic and socio-psychological variables such as: age, race, and ethnicity (Rosenstock, 1990; Janz and Becker, 1984). These factors result in target-group and culture-group specific influences. Cues to action are another modifying factor known to influence behavioral outcomes. According to Glanz (1981), cues to action can be used to help move a person into action and are potential points for intervention. These can be internal (e.g. symptoms of a disease) or external, (e.g. mass media awareness campaigns) and can motivate behavioral change to occur (Janz and Becker, 1984).
Individual Perceptions

Modifying Factors

Likelihood of Action

Demographic variables and Sociopsychological variables

PERCEIVED BENEFITS MINUS PERCEIVED BARRIERS

Likelihood of Taking Recommended Health Action

PERCEIVED THREAT OF DISEASE "X"

Cues to Action

Knowledge
Language
Family Orientation
Traditional Foods
New Foods

Factors Applied to the Target Group

Health of Children

Table 1. Basic elements of the Health Belief Model with factors which apply to Mexican-Americans

Adapted from Janz and Becker, 1984.
Applying components of the Health Belief Model

*Perceived Threat*

The literature indicates that Hispanic parents are concerned about the health of their children (Guernica, 1982; Marín and VanOss Marín, 1991). Applying this information to the Health Belief Model suggests that Hispanics will relate to a perceived threat to their children’s health and that educational programs may be more effective if children are the focus (Table 1).

*Modifying Factors*

The modifying factors of the Health Belief Model can be considered from a perspective of cultural appropriateness.

"...Culture is a shared set of beliefs, assumptions, values, and practices; it determines how we interpret and interact with the world, and it structures our behavior and attitude throughout our lives. An individual’s or group’s culture can have a profound effect on the way they define and experience health." (Gonzalez et al., 1991p.1).

The development of culturally appropriate and culturally sensitive programs has recently been recognized as an important and effective way to motivate positive change in specific groups (Gonzalez et al., 1991). There is an increasing interest in developing culturally appropriate programs (Humm-Delgado and Delgado, 1986). In legislative testimony, the American Dietetic Association stated that "culturally specific educational materials and behavioral strategies are needed," and called for the development of culturally specific programs and materials for minority groups at
high risk for diabetes (Legislative Highlights, 1992). According to Marín and VanOss Marín (1991), Rogler indicated that cultural appropriateness should be considered in all aspects of research. Cultural appropriateness should begin at the program development stage, influence the type of instruments developed and direct the intervention methods chosen (Marín and VanOss Marín, 1991).

Cultural aspects to keep in mind when working with the Hispanic population are: diet and health knowledge, language, family orientation, use of traditional foods, and familiarization with new products. In the Health Belief Model these are labeled as modifying factors.

**Diet and Health Knowledge:** Ramirez (1979) found that even when Mexican-Americans felt it was important to reduce the risk of cardiovascular disease, they lacked the knowledge to do so. Although Hispanics are very concerned about the health of their children, they are not as aware of how their diet affects the health of their children (Molina, 1983).

**Language:** Lack of English speaking ability has been shown to limit the Hispanics’ access to health care (Solis et al., 1990). O.S.U. Extension staff has identified language as a barrier (Raab, personal communication). Guernica (1982) suggests that the use of the Spanish language is the most effective way to reach the Hispanic population. He states that the use of Spanish is not limited to only the elders of the population. In 1976, the U.S. Department of Commerce found that
over 64% of Spanish-origin population under 20 year old preferred the Spanish language. In addition, 50% of the college-educated Spanish-origin population used the Spanish language. Recent estimates indicate that more then 80% of the U.S. Spanish-origin population uses the Spanish language (Guernica, 1982). Ramirez's studies (1979) indicate that educational programs should be language appropriate.

Family Orientation: The family is the basic support system for Hispanics. Although urbanization and acculturation may cause some breakdown in family structure, the family is still a vital resource (Mirandé 1977; Yetley et al., 1981). Guernica (1982) indicates that the Hispanic family is characterized by strong and close family ties. It has been proposed as one of the most important cultural-specific values of the Hispanic population (Marín and VanOss Marín, 1991). Molina (1983) indicates that the family unit is an important traditional feature, and should be considered in health promotion strategies. Guernica (1982) states that although the enjoyment of food takes precedence over health, nutrition and health can become primary considerations in choosing food if it is for the benefit of children. Marín and VanOss Marín (1991) found that, when developing behavior modification programs for Hispanics, the desired behavioral change was more likely to take place if an emphasis was placed on the family. For example they found that stopping smoking because of its bad example for the children was more important to Hispanics then non-Hispanics.
**Traditional Foods:** A number of studies cite the importance of traditional foods. When designing nutrition intervention programs, balanced diets based on traditional foods should be utilized (Molina, 1983; Dewey et al., 1984b). "Our traditional foods are good, but let's make them better" has been suggested as a culturally sensitive approach (Romero-Gwynn, 1991; personal communication).

**Familiarization with new products:** Another factor which influences food selection is familiarization with new products. Mexican Americans are more likely to buy products that they recognize and are familiar to them (Dewey et al., 1984b). Providing the chance to taste-test culturally appropriate low-fat foods may help Hispanics to incorporate them into the diet (Delapa et al., 1990).

Taking these modifying factors into account, an educational program based on the Health Belief Model should increase knowledge of diet and health, be language appropriate, involve the family unit, and introduce healthy low-fat foods.
METHODS

Preliminary Research\Needs Assessment

The review of literature provided the basic understanding of the diet related health problems in the Hispanic community and suggested possible intervention techniques. Information in this preliminary stage was also gathered from O.S.U. Extension Service professionals working with the Hispanic population. In addition, the researcher's roots in, and experience with, the Hispanic community provided further insight for program development.

Hispanic Roundtable

Further information was gathered in December of 1991, when a needs assessment was conducted in Hood River, Oregon with professionals who were working with Hispanics. There were sixteen participants, 80% of whom were Hispanic. The meeting, conducted in a round table format, was used to gain additional information on the characteristics of Oregon's Hispanic population. The meeting was patterned after a focus group format, with predetermined open-ended questions which allowed for ideas and attitudes to be expressed (see appendix A for questions and selected responses). From the round table discussion and conversations with other professionals who also work with the Hispanic population in Oregon, several themes emerged: 1) the low education, low literacy, and low
income level of the population should be considered in program development; 2) Hispanics' strong family unity and their concern for children should be emphasized; 3) general nutrition education is needed with an emphasis on reducing fats and sugars in the diet; and 4) programs should be culturally appropriate in terms of language and foods. These themes provided ideas for both the educational messages to be emphasized and for the medium of presentation.

By merging the themes which arose through the round table discussion with information provided in the literature, it was possible to design a nutrition education program to meet the needs of Northwest Hispanics. The method of presentation chosen was a slide/tape show. It was felt that this would be the most beneficial to a low literacy audience. In addition, a slide/tape show would be a resource for O.S.U. Extension workers who are not fluent in Spanish.

Development Phase

Audiovisual Development

Three educational messages were selected for the slide show: 1) balance, variety and moderation in the diet, 2) healthy low-fat food choices, and 3) economical food choices. Through the use of a story board, these messages were woven into a script which takes an Hispanic family on a supermarket tour conducted by an Extension nutrition educator. Each slide was planned to deliver a specific message. All messages were related to the health of children and culturally
appropriate food choices for them. The script included a bilingual approach, with the narration in Spanish but the store signs and food labels in English. This was intended to increase the chances that participants could then identify the products in the store by recognizing the English words. The narration gave both the Spanish and English words for terms such as: "whole wheat", "vegetarian" and varieties of "low-fat" milks. The script was translated by three Spanish speakers and the most appropriate translations were edited into the final script by the researcher.

**Slide/Tape Content**

The message of balance, variety and moderation was approached through an emphasis on daily consumption of foods from each of the five USDA Food Guide Pyramid groups adapted for a Mexican-American audience (US Dept of Agriculture, 1992).

**USDA Food Guide Pyramid Groups Adapted for a Mexican-American Audience**

<table>
<thead>
<tr>
<th>USDA Pyramid Group</th>
<th>Adaptation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Breads, Cereal, Rice,</td>
<td>Pan, Tortillas Y Granos &amp; Pasta</td>
</tr>
<tr>
<td></td>
<td>(Bread, Tortillas, &amp; Grains)</td>
</tr>
<tr>
<td>2) Vegetables</td>
<td>Verduras</td>
</tr>
<tr>
<td></td>
<td>(Vegetables)</td>
</tr>
<tr>
<td>3) Fruit</td>
<td>Frutas</td>
</tr>
<tr>
<td></td>
<td>(Fruit)</td>
</tr>
<tr>
<td>4) Milk, Yogurt, &amp; Cheese</td>
<td>Leche Y Productos de Leche</td>
</tr>
<tr>
<td></td>
<td>(Milk &amp; Milk Products)</td>
</tr>
<tr>
<td>5) Meat, Poultry, Fish,</td>
<td>Carne, Frijoles Y Huevos</td>
</tr>
<tr>
<td></td>
<td>(Meat, Beans &amp; Eggs)</td>
</tr>
</tbody>
</table>
The message also promoted fiber sources (whole wheat grains, fruits and vegetables) and vitamin C and vitamin A sources. Variety was approached by emphasizing the need to eat different foods within each group and to try new items once in awhile. A number of healthy snacks for children were suggested such as fruit, vegetables, and cheese. Some foods which the literature indicated are consumed often by an Hispanic population were targeted for moderation. These included high sugar cereals, soda pop, and high fat processed luncheon meats. A traditional "liquado" with orange juice and skim milk was suggested as a soda pop substitute. This was also offered as a snack at the workshops.

The message of healthy low-fat food choices was targeted from many directions. A change in cooking methods was emphasized to reduce fat intake. For example, a change from lard to a vegetable oil was advised as well as the use of less fat when cooking. Because high fat salad dressings are frequently consumed in the Mexican-American diet, moderate use was advised. Lower fat dairy products were featured because the literature indicates that Hispanics may be unaware of them and because dairy consumption is low. Slides of low-fat milks, cheeses and yogurt alternatives emphasized the importance of milk for strong healthy bones of children. Low-fat messages also included the recommendation to remove the skin from chicken before cooking, to pour off fat when cooking hamburger, and use of small servings of meat spread throughout the day.

To address the message of economical food choices, many approaches were again taken. The script began with the family looking at the sale newspaper
advertisements and making out a grocery list. Looking for sales on meats, fruits and vegetables was stressed. The economical benefit of buying fruits and vegetables locally and in season was discussed. The use of private or store labels as lower cost options was encouraged. The savings from buying in larger sizes was pointed out in many different spots in the script (for example, larger cereal boxes, gallon size of milk, and cheese in block instead of prepackaged slices). Reducing the amount of work the store does was shown to save money when buying whole versus cut chicken. The economical advantage of lower fat milk was also discussed. Regular hamburger was shown as more economical than lean hamburger.

**Slide/Tape Production**

A local Hispanic family of four was recruited to pose for the slides and the researcher played the role of the Extension nutrition educator. Slides were shot at Richey’s Supermarket in Corvallis, Oregon. Photography work was donated by John Montavon and graphics were designed by the researcher. The audio tape was produced by John Sulzmann, Audio Production Coordinator of the O.S.U. Agricultural Communications staff and the narration was read by Rosa Zavala de Erlebach, Hispanic program assistant with the Wasco county office of the O.S.U. Extension Service. Dr. Carolyn Raab and Dr. Margy Woodburn were resource consultants.
The completed project, an 80-slide, 15 minute tape titled "Compre Comida Saludable" (Buy Healthy Foods), was completed in May of 1992 (Appendix B).

In addition, a nutrition education coloring book, "On the Right Track" (Romoslawski, 1987) was translated into Spanish for children attending the workshops.

Workshop Development

A workshop was designed to assess the effectiveness of the slide show. The 50-60 minute pilot workshop consisted of (1) food demonstration, (2) introduction and pretest, (3) showing of the Compre Comida Saludable slide/tape, and (4) participant feedback and closing. The workshop was conducted in Spanish.

The food demonstration for the pilot workshop included a traditional drink called a liquado, modified slightly to make it a healthier snack, and a sample of low-fat cheeses. The introduction included an explanation of the purpose of the workshop, the Human Subjects Committee informed consent statement (appendix C), and a written pretest (pre-test section). Phone numbers were requested at the end of the pretest in order to complete a follow-up phone post-test (post-test section) three weeks after the workshop.

The slide/tape program "Compre Comida Saludable" was shown next, followed by participant feedback/group discussion. The participant feedback was recorded for transcription at a later date. Nutrition education coloring books in Spanish as well as color crayons were available for the children in attendance.
Workshop Pilot Testing

The workshop design was piloted at Columbia Villa, a low income housing project, in Portland, Oregon. Three Hispanic women aged 30-45 years attended. Two of them had children, 3 of whom attended the workshop. The other participant was pregnant at the time of the workshop.

During the pilot workshop, it was found that the food demonstration was too long and the preparation and sampling of the low-fat cheeses were too much to handle along with the written pre-test at one workshop. The cheese samples were eliminated and the liquado demonstration was shortened by having it prepared in advance and served as participants entered the workshop.

In addition, it was found that the participant feedback questions needed to be more specific. This was changed to a group discussion which included a review of the five basic food groups and group sharing of the favorite selections which their children make from each group. A review of the economical food choices pretest questions, with correct answers was also added. The review concluded with general reaction of participants to the slide/tape show (see Appendix D for questions). During the final workshops this section was also recorded and later transcribed, providing qualitative data on participants' reactions to cultural appropriateness and program presentation (appendix D for selected responses).
The final workshop design also included an invitation to participate in a supermarket tour. The final workshop design (table 2), includes: 1) Pre-workshop activities, 2) Introduction and Pre-test, 3) "Compre Comida Saludable" slide show, 4) Group discussion, and 5) Closing.

The workshop was planned to last 50-60 minutes. Child care was provided at the final workshops along with the nutrition education coloring books.

Table 2. Finalized General Workshop Design "Compre Comida Saludable".

<table>
<thead>
<tr>
<th>I. Pre-Workshop activities:</th>
<th>Approximate Time (in minutes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Music playing while participants arrived</td>
<td></td>
</tr>
<tr>
<td>B. Liquado prepared from: orange juice and skim milk (ratio of 2:1) with a small amount of sugar added.</td>
<td></td>
</tr>
<tr>
<td>II. Introduction and Pre-test</td>
<td>10</td>
</tr>
<tr>
<td>A. Program introduction,</td>
<td></td>
</tr>
<tr>
<td>1. consent form read</td>
<td></td>
</tr>
<tr>
<td>B. Completion of Pre-test.</td>
<td>10-15</td>
</tr>
<tr>
<td>III. Compre Comida Saludable slide/tape</td>
<td>15</td>
</tr>
<tr>
<td>IV. Group Discussion</td>
<td>10-15</td>
</tr>
<tr>
<td>A. Food Groups</td>
<td></td>
</tr>
<tr>
<td>B. Economical food choices</td>
<td></td>
</tr>
<tr>
<td>C. Reaction to slide show</td>
<td></td>
</tr>
<tr>
<td>V. Closing</td>
<td>5</td>
</tr>
<tr>
<td>A. Thank-you</td>
<td></td>
</tr>
<tr>
<td>B. Invitation to Supermarket Tour</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>50-60</td>
</tr>
</tbody>
</table>
Instrument Development and Validation

To test the effectiveness of the "Compre Comida Saludable" workshop, a pre-test questionnaire and a post-test questionnaire were developed. A consultant from the Oregon State University Survey Research Center helped with format of the questionnaires and both were approved by the Human Subjects Committee at Oregon State University. The pre-test and post-test questionnaires went through three translations to ensure language clarity.

Pre-test Development

The original written pre-test questionnaire assessed: (1) participants' attitudes towards health and diet, (2) their knowledge of economical food choices, (3) and their child's fat consumption behavior. This pre-test was piloted at the pilot workshop at Columbia Villa.

Attitudes Toward Health and Diet

The following five questions using a Likert-scale format were designed to measure Research Question 1 regarding the attitude of participants towards the relationship between health and diet.
Attitudes Toward Health and Diet

1. I think about nutrition when I prepare food for my family.
2. My children can get sick if they don’t eat the right foods.
3. I worry about what my children eat.
4. Children won’t grow if they don’t eat right.
5. Eating a variety of food is healthier.

Knowledge of Economical Food Choices

Six questions measured knowledge of economical food choices. These were designed to answer Research Question 2b regarding impact of the workshop on knowledge of economical food choices. These were included in both the pre and post tests. A knowledge score was generated from responses to the following questions.

<table>
<thead>
<tr>
<th>Question</th>
<th>Food Choices</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>Low-fat milk or Whole milk.</td>
</tr>
<tr>
<td>#2</td>
<td>Cereal in large boxes or Cereal in small boxes.</td>
</tr>
<tr>
<td>#3</td>
<td>Gallon of milk or Quart of milk.</td>
</tr>
<tr>
<td>#4</td>
<td>Cut chicken or Whole chicken.</td>
</tr>
<tr>
<td>#5</td>
<td>Prepackaged cheese or Block cheese</td>
</tr>
<tr>
<td>#6</td>
<td>Local in season fruits and vegetables or Imported fruits and vegetables.</td>
</tr>
</tbody>
</table>

Knowledge Questions of Economical Food Choices
These questions were scored with 1 point for a correct response and 0 points for an incorrect response. The pre-test questions (#-1 through #-6) were summed for a "Knowledge pre" score. Post-test questions (#-6 through #-11) were summed for a "knowledge post" score. Six points were possible for each test.

**Child’s Fat Consumption Behavior**

Five questions from Frank’s et al. (1991) fat-avoidance scale were used to measure children’s fat consumption behavior. The questions involved identification of the type of milk, hamburger and cooking oil used in child’s diets; the type of fat used for refried beans; and the frequency of removal of chicken skin when serving it to children. These questions provide some baseline dietary data and allow for some comparison with Frank et al.'s findings.

**Pre-test Pilot and Validation**

During the pilot workshop, it was evident that the pre-test Likert-scale question format was not being understood, and did not appear to be measuring attitudes as intended. One of the participants had significant trouble completing this section of the pre-test. It was apparent that the Likert-type scale was not an appropriate measurement tool for this Hispanic group. Therefore, the pre-test was redesigned and piloted a second time with 3 more Hispanic mothers. Each of these women was asked to complete the pre-test on an individual basis. In this case, descriptive response categories such as (e.g. always, sometimes, never, or I very
much agree, somewhat agree, or very much disagree) were used to express degree of agreement/disagreement, instead of a traditional Likert-type scale. Unfortunately, even with the descriptive terms, the participants insisted that there had to be a right or wrong answer. After several attempts to accurately measure attitude of participants towards the relationship of diet and health, it was decided that this type of attitude measurement was not appropriate for the target group, and that attitude towards health and diet could not be directly measured with a written questionnaire. As a result, these questions were dropped, resulting in a revised final pre-test questionnaire (Appendix E). The questions relating to economical food choices and child’s fat consumption behavior both worked well.

Post-test Development

The post-test questionnaire (Appendix E) assessed: (1) participants’ attitudes towards diet and health, (2) their knowledge of economical food choices, (3) balance of child’s diet, and (4) changes in child’s fat consumption behavior as a result of the slide show program. In addition, the post-test gathered demographic information on place of birth, years in country, years in WIC, language preferred, years of education, and age of mother.
Attitudes Towards Diet and Health

Questions related to participants' attitudes toward the relationship between diet and health were developed to measure Research Question 1. Changes in attitude as a result of having attended the workshop were assessed. These post-test questions included:

#-19, "As a result of having attended the program, have you changed anything in the diet of your child?". Responses indicated whether a change was made towards an improved health practice and whether diet is considered an important factor in health.

#-20, "If you have changed anything, what have you changed?" This allowed the participants to categorize the changes made.

The following questions were also designed to measure attitudes about the relationship between diet and health and assess parental concerns about their children's health.

#-21, "Do you worry about what your child(ren) eat?”;
#-22, "Do you think your child(ren) can get sick if they don't eat the right foods?";

#-23, "Are you concerned about whether your child(ren) might gain too much weight?";

#-24, "Are you concerned about whether your child(ren) might get diabetes?";

#-25, "Are you concerned about whether your child(ren) might get heart disease?";

#P-26, "Do you think that a healthy diet can reduce the risk of these diseases?".

Although no pre-test information could be obtained, responses to question #21-#26 do not indicate any changes in attitude as a result of having attended the workshop. Instead these questions give data on the participants’ after the workshop.
Knowledge of Economical Food Choices

In addition to the knowledge post score described for the pre-test, the following post-test questions were also designed to answer the Research Question 2b in regards to the effect of the workshop on increasing economical food choice knowledge.

#-2, "If you have been shopping since attending the workshop, did the workshop help you save any money?",

#-3, "How did the workshop help you save money?"

#-5, "As a result of having participated in the workshop, have you compared prices when shopping?"

Balance of Child's Diet

A "diet adequacy" score was calculated from post-test question #-27. The "diet adequacy" score was designed to measure balance of dietary intake, based on daily consumption from the 5 food groups. A diet adequacy score was calculated by assigning 1 point for daily consumption of each food group and summing the points. A perfect score would thus be 5. There were no pre-workshop data and thus the actual change as a result of the workshop could not be measured.

The diet adequacy score was designed to measure Research Question 2a in regards to whether the workshop conveyed appropriate nutritious food choices.

The following question asked in general whether the workshop helped with choosing more nutritious meals:

#18 "Did the program help you to plan more nutritious meals for your family or not?".
Changes in Child's Fat Consumption Behavior

The following post-test questions were also used to measure Research Question 2a by trying to elicit information on whether the workshop promoted lower fat consumption behavior:

#-12, "As a result of the program, have you, do you plan to, or do you not plan to, take the skin off of chicken which you fix for your children?";

#-13, "As a result of the program, have you, do you plan to, or do you not plan to, buy low-fat milk for your children?";

#-14, "As a result of the program, have you, do you plan to, or do you not plan to, remove the fat from hamburger which you fix for your children, after you cook it?";

#-15, "As a result of the program, have you, do you plan to, or do you not plan to, change from lard to vegetable oil when making refried beans?";

#-16, "As a result of the program, have you, do you plan to, or do you not plan to, reduce the amount of oil/fats when cooking?".

Questions #12-#16 related to messages included in the slide show and assessed a specific behavioral change as a result of having attended the nutrition education program.

Post-test Pilot and Validation

The pilot post-test follow-up phone calls were conducted in Spanish, 3 weeks after the pilot workshop. Two female participants from the Columbia Villa pilot workshop were contacted as well as 1 male and 1 female who were excluded from the first research workshop sample because they did not have children in the correct age group. The post-test questionnaire worked very well and only editorial changes were needed.
Supermarket Tour Development

The supermarket tour was designed: 1) to review the messages from the slide show, 2) to provide the chance for hands-on familiarization, and 3) to give participants a chance to ask question in the supermarket setting. This information could then be used for further educational program development. The tour was designed using feedback from the completed workshops. A review of the 5 food groups was planned for the beginning of the tour. A handout of the five food group graphic used in the slide set was prepared for each participant.

The tour itself included stops at seven sections: 1) the bread section, 2) the milk section, 3) breakfast cereals section, 4) the oils section, 5) the meats section, 6) the Mexican foods section, and 7) the fruits and vegetables sections (Table 3).

In the breads section, the message was to look for a 100% whole wheat label.

At the milk section, the differences in fat content were talked about. The relationship between cap color and fat content was added as a topic after workshops revealed that many participants bought milk based on cap color. Each store uses different cap colors for different fat content of milk. Thus there is no uniformity and the fat content must be identified and cap color coordinated before it can be used as a purchasing method. In this section, the lower fat cheeses and yogurt were also discussed to promote familiarization with low fat dairy products. Lower-fat milk was recommended for anyone over 2 years of age. The use of raw milk was discouraged, especially for children, pregnant women, and elderly.
Table 3. Supermarket sections and advice at each stop for the follow-up supermarket tour after the Compre Comida Saludable workshop, attended by two participants.

<table>
<thead>
<tr>
<th>Section</th>
<th>Advice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breads</td>
<td>Look for 100% whole wheat on the label.</td>
</tr>
<tr>
<td>Milk</td>
<td>Choose low-fat milk, cheese and yogurt.</td>
</tr>
<tr>
<td></td>
<td>Don’t use raw milk.</td>
</tr>
<tr>
<td>Breakfast cereals</td>
<td>Choose cereals with less sugar.</td>
</tr>
<tr>
<td>Oils</td>
<td>Look for polyunsaturated fats and oils.</td>
</tr>
<tr>
<td>Meat</td>
<td>Look for sales.</td>
</tr>
<tr>
<td></td>
<td>Pour off fat from hamburger</td>
</tr>
<tr>
<td></td>
<td>Take skin off chicken.</td>
</tr>
<tr>
<td></td>
<td>Compare prices of whole versus cut chicken.</td>
</tr>
<tr>
<td>Mexican Foods</td>
<td>Choose &quot;vegetarian&quot; canned beans without lard.</td>
</tr>
<tr>
<td>Fruits/ Vegetables</td>
<td>Eat a variety of fruits and vegetables.</td>
</tr>
<tr>
<td>Summary</td>
<td>Eat foods from the 5 food groups.</td>
</tr>
<tr>
<td></td>
<td>Goals of balance, variety, and moderation.</td>
</tr>
</tbody>
</table>

The next stop was cereals, where label reading of the amount of complex carbohydrates versus simple sugars was taught.

The oils section was the next stop, where the idea of polyunsaturated fat was introduced.

The meat section provided a chance to look for sales and talk about reducing fat intake by pouring off the fat from hamburger or taking off the skin of chicken. Whole chicken versus cut chicken prices were also compared.
Canned beans was the next stop, where the labels were examined for vegetarian type made without lard.

In the fruits and vegetables section, participants were asked what types of vegetables and fruits they consumed. They were encouraged to look for locally in season fruits and vegetables and to compare sale prices. In addition, variety was discussed at this stop.

The summary included a simple reminder to consume foods from the 5 food groups with the goals of balance, variety and moderation. The supermarket tour was designed for approximately a 30 minute time slot.

The supermarket tour provided qualitative data of participant questions, comments and reactions. This information helped to answer Research Question 3 in regards to increasing the likelihood of behavior change.

**Implementation Phase**

**Subjects**

The subjects for this study were Spanish speaking participants in the Special Supplemental Food Program for Women, Infants, and Children’s (WIC) of the Salud Medical Clinic in Woodburn, Oregon. Participants in this WIC program attend regular monthly nutrition programs. Our workshop, the Compre Comida Saludable program was scheduled during the time allotted for these regular meetings.
Informed consent was obtained at the beginning of each workshop when participants were invited to evaluate the Compre Comida Saludable program. In accordance with the Human Subjects Committee stipulations, participants were advised that there was no obligation to do so, nor any ramification for their WIC benefits (Appendix C for introductory statement).

Workshop

Three workshops were held: June 2 at 11 a.m., June 9 at 11 a.m. and June 9 at 1 p.m. For two of the workshops, most children played with nutrition education coloring books in an adjacent room. The finalized workshop design (table 2) was followed.

Pre-test

Participants were asked to complete a questionnaire to help us evaluate the program and plan future programs. (There was no mention as to it being a "pre" test). The pretest questionnaire was given before any of the education messages were discussed.
Post-test

At the end of the pretest, names and phone numbers, along with permission to contact for follow-up phone post-test, were requested. Only those participants who indicated a willingness to be called were included in the post-test. The follow-up phone call post-tests were conducted 3 weeks after each workshop. Phone interviews were 10-15 minutes long, 90% were conducted in Spanish and 10% in English.

Supermarket Tour

At the end of each workshop, an announcement was made about an upcoming supermarket tour. Participants were asked to indicate their interest in and availability for attending a supermarket tour. Three participants indicated an interest; 2 actually participated in the supermarket tour, which was held in Woodburn at Roth’s IGA Foodliner on July 13, 1992.

Statistical Analysis

The data were analyzed with the assistance of an Oregon State University Statistical consultant using the Statistical Package for Social Science SPSS/PC+ (Norusis, 1988).
RESULTS AND DISCUSSION

Subjects

Pre-test Participants

A total of 37 people attended the 3 workshops and completed the pre-test. Of these, 3 were males (8%), and 34 were females (92%). The three males were eliminated from the sample to assure more homogeneity, and one female was eliminated due to uncertainty of the data reliability. This resulted in 33 final completed pre-tests. The average number of children per participant was 2.2 with a range of 1 to 6 children.

Post-test Participants

A total of 19 female participants completed the follow-up phone post-test. Only those who had indicated a willingness to be called, and who had children who were 1 to 9 years old (median age 2) were included in the final sample. Demographics are reported in Table 4.
Table 4. Demographic data of 19 WIC mothers who participated in the workshop "Compre Comida Saludable" (as collected in the post-test).

<table>
<thead>
<tr>
<th>DEMOGRAPHICS</th>
<th>Mean</th>
<th>SD</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>25.7</td>
<td>4.9</td>
<td>18 to 36</td>
</tr>
<tr>
<td>Years in United States</td>
<td>9.3</td>
<td>8.8</td>
<td>1 to 31</td>
</tr>
<tr>
<td>Years of education</td>
<td>8.9</td>
<td>2.6</td>
<td>3 to 12</td>
</tr>
<tr>
<td>Months in WIC</td>
<td>29.7</td>
<td>21.9</td>
<td>11 to 97</td>
</tr>
<tr>
<td>Number of children</td>
<td>2.2</td>
<td>1.3</td>
<td>1 to 6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Language preferred?</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spanish</td>
<td>17</td>
<td>90**</td>
</tr>
<tr>
<td>English</td>
<td>2</td>
<td>11</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Language spoken at home?</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spanish</td>
<td>13</td>
<td>68</td>
</tr>
<tr>
<td>Both</td>
<td>5</td>
<td>26</td>
</tr>
<tr>
<td>other</td>
<td>1</td>
<td>5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Language read?</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spanish</td>
<td>14</td>
<td>74**</td>
</tr>
<tr>
<td>English</td>
<td>2</td>
<td>11</td>
</tr>
<tr>
<td>Both</td>
<td>3</td>
<td>16</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Where were you born?</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mexico</td>
<td>16</td>
<td>84</td>
</tr>
<tr>
<td>U.S.</td>
<td>3</td>
<td>16</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Parents born?</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mexico</td>
<td>16</td>
<td>84</td>
</tr>
<tr>
<td>U.S.</td>
<td>3</td>
<td>16</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Grandparents born?</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mexico</td>
<td>16</td>
<td>84</td>
</tr>
<tr>
<td>U.S.</td>
<td>2</td>
<td>11</td>
</tr>
<tr>
<td>Don't know</td>
<td>1</td>
<td>5</td>
</tr>
</tbody>
</table>

**Percent does not equal 100.
Pre-Test Results

Knowledge of Economical Food Choices

The knowledge pre-test responses on economical food choices are summarized in (Table 5). The average "knowledge pre-score" was $4.7 \pm 1.3$, with a range of 2.0 to 6.0. The highest possible score was 6 points. Such a high pre-test score indicates that the participants' knowledge of economical food choices was quite high prior to the workshop.

Table 5. Responses of 33 WIC Mothers to the economical food choices knowledge pre-test of the "Compre Comida Saludable" workshop.

<table>
<thead>
<tr>
<th>Which is more economical?</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low-fat or Whole milk</td>
<td>(correct)</td>
<td>26</td>
</tr>
<tr>
<td></td>
<td>(incorrect)</td>
<td>7</td>
</tr>
<tr>
<td>Small box or Large box</td>
<td>(incorrect)</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>(correct)</td>
<td>25</td>
</tr>
<tr>
<td>Gallon or Quart of milk</td>
<td>(correct)</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>(incorrect)</td>
<td>3</td>
</tr>
<tr>
<td>Cut chicken or Whole Chicken</td>
<td>(incorrect)</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>(correct)</td>
<td>20</td>
</tr>
<tr>
<td>Prepackaged cheese or Block cheese</td>
<td>(incorrect)</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>(correct)</td>
<td>27</td>
</tr>
<tr>
<td>Local or Imported fruit</td>
<td>(correct)</td>
<td>27</td>
</tr>
<tr>
<td></td>
<td>(incorrect)</td>
<td>6</td>
</tr>
</tbody>
</table>
Child’s Fat Consumption Behavior

Responses to questions on fat consumption behavior are summarized in Table 6. Some consumption patterns are different from those identified by other researchers. For example, about half (48%) of the WIC mothers whose children eat chicken reported that they usually or almost always removed the skin before serving it to them. This is lower than that reported by Frank et al. (1991) where 59% of Mexican-American parents reported usually or almost always removing the skin from chicken served to their children.

Over half (52%) of the WIC mothers who served milk reported serving low-fat milk to their children. This is much higher than the 27% in Frank et al’s. study.

Fifty-three percent of the WIC mothers whose children eat hamburger served lean and extra lean. This, too, is higher than the 33% reported by Frank et al. (1991). In our study, 32% of the participants whose children eat hamburger served regular hamburger to them, which was similar to the findings by Frank et al. of 28%.

Vegetable oils were the most common oil/fats used in both our study and Frank et al’s. study. Fifty-two percent of the WIC mothers reported using vegetable oil in cooking compared to 85% of the parents in Frank’s study. Lard was used by only 14% of the WIC mothers when making refried beans for their children compared to 29% of the parents in Frank’s study.

In summary, these data suggest that the WIC mothers were already exhibiting some dietary fat reduction behavior such as: serving low-fat milk, serving lean or
extra lean hamburger, and using less lard when preparing refried beans compared to
the parents in Frank's study.

Although findings suggest that lard, a saturated fat, continues to be used, it is
not as dominant a cooking fat/oil as traditionally seen. The switch from lard to
vegetable oil and the move to more low-fat milk and meat products may indicate
some healthy changes occurring in this population.

Workshop Discussion

The responses from the group discussion questions for each workshop were
recorded and transcribed. Responses for all three workshops were combined
(appendix D) and selected responses are reported.

When asked, "How many types of foods do children need each day, and have
you heard about these before?", most correctly answered "five groups". Participants
apparently had some idea about food grouping before attending the workshop.
However, some indicated that even though they have a general idea of
which foods are good for children, they may not have had very specific information.
Table 6. Fat consumption behavior of young children as reported by 33 WIC mothers in the Compre Comida Saludable workshop pre-test.

<table>
<thead>
<tr>
<th>Behavior</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Removes skin from chicken</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>never removes</td>
<td>7</td>
<td>21</td>
<td>23</td>
</tr>
<tr>
<td>occasionally</td>
<td>9</td>
<td>27</td>
<td>29</td>
</tr>
<tr>
<td>usually</td>
<td>10</td>
<td>30</td>
<td>32</td>
</tr>
<tr>
<td>always</td>
<td>5</td>
<td>15</td>
<td>16</td>
</tr>
<tr>
<td>never eats</td>
<td>2</td>
<td>6</td>
<td>--</td>
</tr>
<tr>
<td>Type of milk served</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>whole</td>
<td>11</td>
<td>33</td>
<td>41</td>
</tr>
<tr>
<td>chocolate</td>
<td>2</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>low-fat</td>
<td>14</td>
<td>42</td>
<td>52</td>
</tr>
<tr>
<td>never drink</td>
<td>6</td>
<td>18</td>
<td>--</td>
</tr>
<tr>
<td>Type of hamburger served</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>regular</td>
<td>9</td>
<td>27</td>
<td>32</td>
</tr>
<tr>
<td>lean</td>
<td>4</td>
<td>12</td>
<td>14</td>
</tr>
<tr>
<td>extra lean</td>
<td>11</td>
<td>33</td>
<td>39</td>
</tr>
<tr>
<td>don’t know</td>
<td>4</td>
<td>12</td>
<td>14</td>
</tr>
<tr>
<td>never eats</td>
<td>5</td>
<td>15</td>
<td>--</td>
</tr>
<tr>
<td>Fat used in refried beans</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>lard</td>
<td>4</td>
<td>12</td>
<td>14</td>
</tr>
<tr>
<td>bacon grease</td>
<td>1</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>crisco</td>
<td>11</td>
<td>33</td>
<td>38</td>
</tr>
<tr>
<td>vegetable oil/ PAM</td>
<td>13</td>
<td>39</td>
<td>45</td>
</tr>
<tr>
<td>never eats</td>
<td>4</td>
<td>12</td>
<td>--</td>
</tr>
<tr>
<td>Type of fat used in cooking **</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>lard</td>
<td>9</td>
<td>27</td>
<td>29</td>
</tr>
<tr>
<td>butter</td>
<td>11</td>
<td>33</td>
<td>36</td>
</tr>
<tr>
<td>crisco</td>
<td>14</td>
<td>42</td>
<td>45</td>
</tr>
<tr>
<td>margarine</td>
<td>6</td>
<td>18</td>
<td>19</td>
</tr>
<tr>
<td>vegetable oil</td>
<td>16</td>
<td>49</td>
<td>52</td>
</tr>
<tr>
<td>none</td>
<td>2</td>
<td>6</td>
<td>--</td>
</tr>
</tbody>
</table>

* Valid percent: excludes missing and not applicable

**More than one response was possible, percent does not equal 100%
One participant commented that she makes it a habit to buy foods in all of the five groups. Another participant said that a lot of the time they are not as well informed about the foods which are the most healthy or the most nutritious. One participant said that through talks and television in Mexico, they are aware that certain foods are best, but that they didn’t know really that there are five groups and which foods are in each group. But that they were familiar with most of the foods.

The question in regards to their children’s favorite foods in each group helped to see if participants in fact understood which foods were in each group. It also revealed which foods within each group are preferred by this audience.

Most comments indicated that participants did in fact understand the breakdown into the five food groups. One participant mentioned bananas when asked about favorite vegetables and had to be reminded that it was a fruit (The traditional boiling of green bananas in Mexico may have contributed to identification of this food as a vegetable). And when reviewing the meat, beans, and egg group most did not mention beans until reminded that they provide similar nutrients and are included in the meat group.

Some of the children’s favorite foods from each group included:

<table>
<thead>
<tr>
<th>Breads, Cereals and Grains:</th>
<th>fideos, corn tortillas, noodle soup, rice, Cheerios, cornflakes.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vegetables:</td>
<td>corn, carrots, soups, potatoes, lettuce with tomatoes and celery.</td>
</tr>
<tr>
<td>Fruits:</td>
<td>apples, oranges, platanos, melon, bananas, pineapple, nectarines, peaches.</td>
</tr>
<tr>
<td>Milk and Milk Products:</td>
<td>cheese, quesadillas from cheese.</td>
</tr>
<tr>
<td>Meat, Beans, and Eggs:</td>
<td>beef, chicken, eggs, and beans.</td>
</tr>
</tbody>
</table>
Reviewing the economical food choices provided an opportunity to ensure that participants left with the correct answers. Many of the participants were vocal and gave the answers out loud. The WIC mothers seemed quite confident in responding.

The questions regarding reactions to the slide/tape show provided some feedback, but in general the participants' answers were short and to the point. The participants indicated that they did feel that the information about how to get the best buys would benefit other Mexican-American families. When asked, "Do you think the information about which foods children need to be healthy will help other families?, it appeared that there was a general agreement around the table. One participant commented that, "yes (it would be beneficial) because there are a lot of people who don't have knowledge of this, and a lot of times people don't know and they are giving a lot of fat to children."

Participants seemed to agree that the information on using a shopping list will help other families. One participant indicated that it helps to learn about having a grocery list because if one goes to the store without knowing what they are going to buy, they take home things that they don't need.

Most participants seemed to agree that "everything in the slide/tape program" was helpful but two specific points were made as to the most useful information. One participant said, "Knowing that rice and beans are similar to meat is helpful." Another pointed out that being reminded to look for specials and sales was helpful.

The most enthusiastic responses were to the question, "Did you like the fact that the program was in Spanish?" Each time this was asked almost everyone said,
"YES!" One participant said that when it's in Spanish, she's more confident in answering questions, and she knows that she's understanding more.

Most of the participants shopped with their children and indicated that sometimes that's hard because they want you to buy things for them as they get older. The majority appeared to shop at the larger grocery stores such as Roth's IGA and The Shopping Cart in Woodburn, Oregon.

Some of the topics which participants indicated they would like an educational program on include: information on safety of microwaved food, pesticides, nutrients in frozen vegetables and fruits, family hygiene, nutrition for older people (elderly), nutrients in instant rice.
Post-Test Results

Attitudes Towards Diet and Health

Sixteen of the 19 WIC mothers who responded to the post-test (84%) had made a change in their child’s diet as a result of having attended the workshop. Responses to the open-ended question, "What have you changed," are summarized in Table 7.

Table 7. Changes 16 WIC mothers made in their child’s diet as a result of having attended the "Compre Comida Saludable" workshop (as reported in the post-test.)

<table>
<thead>
<tr>
<th>What have you changed?</th>
<th>Frequency</th>
<th>Valid Percent*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Used less fat in general</td>
<td>7</td>
<td>44</td>
</tr>
<tr>
<td>Added variety</td>
<td>6</td>
<td>38</td>
</tr>
<tr>
<td>Added jugos</td>
<td>6</td>
<td>38</td>
</tr>
<tr>
<td>Taken skin off chicken</td>
<td>4</td>
<td>25</td>
</tr>
<tr>
<td>Increased vegetables</td>
<td>4</td>
<td>25</td>
</tr>
<tr>
<td>Used less sugar</td>
<td>4</td>
<td>25</td>
</tr>
<tr>
<td>Switched to low-fat milk</td>
<td>4</td>
<td>25</td>
</tr>
<tr>
<td>Switched from lard to Crisco</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Switched from Crisco to vegetable oil</td>
<td>1</td>
<td>6</td>
</tr>
</tbody>
</table>

* Valid percent: excludes missing and not applicable

Most (90%) indicated that they worried about what their children eat. Eighty-four percent felt that their children could get sick if they didn’t eat the right foods. Seventy-nine percent of the mothers were concerned that their children could become overweight. Sixty-eight were concerned that their children may develop
diabetes. Only 53% were concerned that their children may develop cardiovascular disease. All (100%) of the respondents indicated that a healthy diet can reduce the risk of these diseases.

Twenty-one percent of the WIC mothers responded that nutrition was what they thought of most when they bought food; 11% thought of nutrition along with price and 11% thought of nutrition along with what their families like. Eleven percent indicated price alone was the most important factor and 21% responded that "what their families liked" was what they thought of the most when buying food. Twenty-one percent responded with all three of the factors. Only 5% responded price and what their family likes.

Knowledge of Economical Food Choices

All WIC mothers correctly identified all six of the economical food choices (Table 8). The average "knowledge post-score" was a perfect score of 6.00.

All (100%) of participants indicated that they felt the workshop helped them to save money. Changes as a result of the workshop are summarized in Table 9.

When asked whether they had compared prices, 90% indicated doing so since attending the workshop. Sixty-five percent of those who had not previously used a grocery list reported doing so since attending the workshop.
Table 8. Responses of 19 WIC Mothers to the Economical Food Choices Knowledge post-test of the "Compre Comida Saludable" workshop.

<table>
<thead>
<tr>
<th>Which is more economical?</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low-fat or Whole milk</td>
<td>(correct)</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>(incorrect)</td>
<td>0</td>
</tr>
<tr>
<td>Small box or Large box</td>
<td>(incorrect)</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>(correct)</td>
<td>19</td>
</tr>
<tr>
<td>Gallon or quart of milk</td>
<td>(correct)</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>(incorrect)</td>
<td>0</td>
</tr>
<tr>
<td>Cut chicken or Whole Chicken</td>
<td>(incorrect)</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>(correct)</td>
<td>19</td>
</tr>
<tr>
<td>Prepackaged cheese or block cheese</td>
<td>(incorrect)</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>(correct)</td>
<td>19</td>
</tr>
<tr>
<td>Local or Imported fruit</td>
<td>(correct)</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>(incorrect)</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 9. General categories of money saving methods used by 19 WIC mothers after the "Compre Comida Saludable" workshop (as reported in the post-test).

<table>
<thead>
<tr>
<th>How did program help you save money?</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buy larger packages</td>
<td>8</td>
<td>42</td>
</tr>
<tr>
<td>Buy gallon size milk</td>
<td>5</td>
<td>26</td>
</tr>
<tr>
<td>Compare prices</td>
<td>6</td>
<td>32</td>
</tr>
<tr>
<td>Look for sales</td>
<td>10</td>
<td>53</td>
</tr>
<tr>
<td>Bought chicken instead of beef</td>
<td>4</td>
<td>21</td>
</tr>
<tr>
<td>Bought whole chicken</td>
<td>4</td>
<td>21</td>
</tr>
<tr>
<td>Other (see results)</td>
<td>6</td>
<td>32</td>
</tr>
</tbody>
</table>
Dietary Balance of Child’s Diet

The average diet adequacy score for 17 children of 17 WIC mothers was 4.35 ± 0.70 out of a possible 5 points, with a range of 3 to 5. (Two participants' children were eliminated because they were not between 1 and 6 years of age.)

Responses are summarized in Table 10.

Although the diet adequacy score is not indicative of nutrient adequacy in the diet, it provides an overall look at balance of the diet. Because it was not feasible to collect pre-workshop data, it is not possible to evaluate the effect of the workshop on the adequacy score. The post workshop score indicates that most participants’ children consumed food from all of the food groups for the day analyzed.

The low consumption of vegetables is in agreement with other researchers. Murphy et al. (1990) found fewer than 2 servings from the fruit and vegetable group per day. Dewey et al. (1984a) found only 0.55 servings of vegetables per day.

All (100%) indicated that the program helped them to plan more nutritious meals for their family.
Table 10. Food group consumption by 17 preschool aged children, whose mothers attended the "Compre Comida Saludable" workshop, (as reported in the post-test).

<table>
<thead>
<tr>
<th>Food Group Consumed:</th>
<th>Frequency</th>
<th>Valid Percent*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breads:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consumed</td>
<td>17</td>
<td>100</td>
</tr>
<tr>
<td>Not consumed</td>
<td>0</td>
<td>--</td>
</tr>
<tr>
<td>Fruits:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consumed</td>
<td>15</td>
<td>88</td>
</tr>
<tr>
<td>Not consumed</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Don't Know</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Vegetables:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consumed</td>
<td>9</td>
<td>53</td>
</tr>
<tr>
<td>Not consumed</td>
<td>7</td>
<td>41</td>
</tr>
<tr>
<td>Milk:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consumed</td>
<td>16</td>
<td>94</td>
</tr>
<tr>
<td>Not consumed</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Meat:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consumed</td>
<td>17</td>
<td>100</td>
</tr>
<tr>
<td>Not consumed</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

* Valid percent: excludes missing or not applicable

Changes in Child’s Fat Consumption Behavior

Fifty-eight percent of participants had removed the skin from chicken served to their children as a result of having attended the workshop (Table 11); 11% were thinking of doing it; 5% were not thinking of removing it; and 21% were already removing the skin prior to attending the workshop. Adjusting for those who already removed the skin from the chicken, 79% of those which the program could have influenced indicated removing the skin from chicken as a result of having attended the workshop.

Thirty-seven percent of participants had changed to a low-fat milk since attending the workshop; 11% were thinking of changing; 21% were not thinking of
changing, and 21% already used low-fat milk. Adjusting for those who had used
low-fat milk prior to the workshop, 54% of the participants indicated a change to a
low-fat milk since attending the workshop.

Eighty-four percent indicated that they had removed the fat from hamburger
since they had attended the workshop; 5% were thinking of doing it. Ninety-four
percent of those who had not previously removed the fat reported doing so as a
result of the workshop.

Twenty-one percent of participants indicated having switched from lard to
vegetable oil when cooking, 16% were thinking of switching, 11% were not
thinking of switching, and 47% already used vegetable oil for cooking. Of those
which the program could influence, 44% had changed from lard to vegetable oil as a
result of having attended the workshop.

Ninety-five percent indicated that they had reduced the amount of fat/oil used
in cooking since attending the workshop; 5% were thinking of trying to reduce the
amount of fat/oil in cooking.
Table 11. Changes 19 WIC mothers made when preparing food for their children as a result of having attended the "Compre Comida Saludable" Workshop, (as reported in the post-test).

<table>
<thead>
<tr>
<th>Behavior Changed:</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin off chicken</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>have done</td>
<td>11</td>
<td>58</td>
<td>79</td>
</tr>
<tr>
<td>thinking of doing</td>
<td>2</td>
<td>11</td>
<td>14</td>
</tr>
<tr>
<td>not thinking of</td>
<td>1</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>already did</td>
<td>4</td>
<td>21</td>
<td>--</td>
</tr>
<tr>
<td>not applicable</td>
<td>1</td>
<td>5</td>
<td>--</td>
</tr>
<tr>
<td>Use low-fat milk</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>have done</td>
<td>7</td>
<td>37</td>
<td>54</td>
</tr>
<tr>
<td>thinking of doing</td>
<td>2</td>
<td>11</td>
<td>15</td>
</tr>
<tr>
<td>not thinking of</td>
<td>4</td>
<td>21</td>
<td>31</td>
</tr>
<tr>
<td>already did</td>
<td>4</td>
<td>21</td>
<td>--</td>
</tr>
<tr>
<td>not applicable</td>
<td>2</td>
<td>11</td>
<td>--</td>
</tr>
<tr>
<td>Remove hamburger fat</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>have done</td>
<td>16</td>
<td>84</td>
<td>94</td>
</tr>
<tr>
<td>thinking of doing</td>
<td>1</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>not thinking of</td>
<td>--</td>
<td>0</td>
<td>--</td>
</tr>
<tr>
<td>already did</td>
<td>--</td>
<td>0</td>
<td>--</td>
</tr>
<tr>
<td>not applicable</td>
<td>2</td>
<td>11</td>
<td>--</td>
</tr>
<tr>
<td>Change from lard to veg. oil</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>have done</td>
<td>4</td>
<td>21</td>
<td>44</td>
</tr>
<tr>
<td>thinking of doing</td>
<td>3</td>
<td>16</td>
<td>33</td>
</tr>
<tr>
<td>not thinking of</td>
<td>2</td>
<td>11</td>
<td>22</td>
</tr>
<tr>
<td>already did</td>
<td>9</td>
<td>47</td>
<td>--</td>
</tr>
<tr>
<td>not applicable</td>
<td>1</td>
<td>5</td>
<td>--</td>
</tr>
<tr>
<td>Reduce cooking fat</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>have done</td>
<td>18</td>
<td>95</td>
<td>95</td>
</tr>
<tr>
<td>thinking of doing</td>
<td>--</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>not thinking of</td>
<td>1</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>already did</td>
<td>--</td>
<td>0</td>
<td>--</td>
</tr>
<tr>
<td>not applicable</td>
<td>--</td>
<td>0</td>
<td>--</td>
</tr>
</tbody>
</table>

*valid percent: excludes missing and not applicable
Research Questions

Research Question 1: Can a culturally appropriate workshop convey that diet is an important factor in optimizing health of families?

The nutrition messages of the slide/tape show were targeted at improving diet to make children healthier. Because an attitudinal baseline could not be established, changes in the child's diet which occurred as a result of having attended the workshop are taken as evidence that the workshop showed that diet is an important factor in optimizing health.

Eighty-four percent of the WIC mothers indicated that they had made changes in the diet of their child as a result of the workshop. Several changes were cited by those participants who indicated making changes. The most common change was decreasing the amount of fat/oil used in cooking. Forty-four percent of those who had made a change had used less fat. Over one-third (38%) indicated that they had added variety to their child's diet; 38% also mentioned adding jugos (milk & juice drink) to their child's diet since the workshop. Twenty-five percent removed the skin from chicken; 25% increased the consumption of vegetables; 25% reduced the amount of sugar; and 25% switched to a low-fat milk. In addition, 6% indicated a switch from lard to Crisco/shortening, and 6% indicated a switch from Crisco/shortening to vegetable oil.

Because the changes which were made were key messages in the "Compre Comida Saludable" workshop, these changes suggest that a tie between diet and optimum health was conveyed. Providing a healthy diet for their children appears to be a key motivator for this group of WIC mothers.
Research Question 2a: Can a slide show effectively convey information about appropriate, nutritious food choices?

All (100%) of the participants indicated that the program had helped them plan more nutritious meals for their families. The following changes which were made as a result of having attended the workshop are evidence that the slide show effectively conveyed information about appropriate, nutritious food choices: decreasing the amount of fat/oil used in cooking, adding variety and jugos (milk & juice drink) to their child’s diet, removing the skin from chicken, increasing the consumption of vegetables, reducing the amount of sugar and switching to a low-fat milk.

In addition, the changes that participants made in their children’s fat consumption behavior indicate that the Compre Comida Saludable Workshop led to more appropriate food choices.

When asked specifically about changes made in dietary fat behavior since attending the workshop, the largest change occurred in reducing fat in general. Ninety-five percent of the WIC mothers indicated reducing the amount of fat in cooking. The next largest change was removal of fat from hamburger; 94. % who had not previously removed the fat from hamburger indicated doing so since the workshop. The removal of fat from hamburger is a substantial change in fat consumption behavior, given that Borrud et al. (1989) found that 43% of fat is from meat, fish and poultry in the diet of this population.
Seventy-nine percent of those who had not previously removed skin from chicken served to children reported doing so since attending the workshop.

Only 21% of those participants who were involved in both the pre-test and post test had served low-fat milk to their children before the workshop. After attending the workshop, 54% of those who had not previously used low-fat milk indicated serving low-fat milk to their children since attending the workshop. Because previous research has shown that whole milk is preferred by Mexican-Americans (Delapa et al., 1990; Koehler et al., 1989), the move to low-fat milk is an important positive dietary change.

Prior to the workshop, 47% of the participants reported using lard when making refried beans for their children. After attending the workshop, 25% indicated they were still using lard. Of these, 15% were thinking about changing. Thus, almost half (44%) of those participants that the program could have influenced had switched from lard to vegetable oil. The study of Romero-Gwynn et al. (1992) on dietary changes showed that lard was used by 67% in Mexico, 28% after immigration, and only 12% by Mexican-Americans who were born in the United States. Most of the WIC mothers immigrated from Mexico. After attending the Compre Comida Saludable workshop, their usage of lard was 25%, which is similar to the Romero-Gwynn et al. (1992) study.

These data suggest that attending the workshop did convey information about nutritious food choices.
Research Question 2b: Can a slide show effectively convey information about economical food choices?

The knowledge pre-score and knowledge post-score indicate that the workshop very effectively conveyed information about appropriate economical food choices. The increase in score was significant ($p < .001$).

The most common question missed on the pre-test was "Which is most economical?: cut chicken or whole chicken." One factor which could have influenced this is the fact that many times supermarkets may have large family pack pre-cut chicken on sale. During the phone post-test, one participant indicated that now she watches for sales and compares the prices more carefully. This response indicates that the participants became more aware of making economical food choices after having attended the workshop.

As is evident from these scores, the participants' knowledge of economical food choices was quite high before the workshop. Although time spent in the WIC program or time in the United States could influence a participant's knowledge of economical food choices, there were no significant differences found. Small sample size may have contributed to the lack of significance.

All (100%) of the participants reported that the program had helped them save money. As a result of having attended the workshop, 53% indicated that looking for sales was the way they saved money. The next most popular category mentioned was buying larger packages (42%). Comparing prices was reported to be a money saving technique by 32% of the participants. When asked specifically later
in the post-test, "Have you compared prices?" 90% indicated having done so.

Twenty-six percent reported saving money by buying the gallon size of milk.

Twenty-one percent reported buying chicken instead of beef as a way they saved money, and 21% bought whole chicken instead of pre-cut chicken to save money.

In addition, sixty-five percent of those who had not previously used a shopping list indicated doing so after the workshop.

Research Question 3: Can a follow-up supermarket tour increase the likelihood of food shopping behavior change?

Two participants and one child attended the supermarket tour. Both participants were 25-30 years old, and their primary language was Spanish. The tour emphasized the following desirable behavior changes:

- buying 100% whole wheat bread,
- using lower fat milk and milk products,
- buying low sugar breakfast cereals,
- changing from lard to vegetable oil,
- reducing the amount of oil used in cooking,
- using private brand labeled foods,
- substituting rice and beans for meat,
- buying whole chicken instead of precut chicken,
- increasing vegetable consumption.

Excerpts from the ethnographic description (Appendix G) of the supermarket tour are supportive evidence of shopping behavior change.

In the area of choosing 100% whole wheat bread, one participant thought she was buying 100% whole wheat bread but was actually not. The tour provided the chance to show her where the labels would say "100%" whole wheat.
The supermarket tour clarified the message of using lower fat milk and milk products in several areas. The group discussion revealed that this population appears to buy milk based on the color of the cap. Although both participants indicated that they buy low-fat milk, one participant was actually buying whole milk (with a red cap). This provided the chance to coordinate cap color and milk type and price difference in this store, encouraging the desired behavior change. The low-fat milk products message was also emphasized in regard to yogurt and cheese. The yogurt was not a planned stop, but participants had questions on the difference between low-fat and non-fat yogurt. During the tour one of the participants decided to try the non-fat yogurt. While we were at the yogurt section, a Mexican-American man overheard us and also decided to try the non-fat yogurt. At the cheese section, one participant indicated that she had tried the lower fat mozzarella cheese since the workshop and her family had enjoyed it. It was on sale and she bought it again.

The likelihood of participant use of low sugar breakfast cereals was definitely increased as a result of the follow-up supermarket tour. Both participants were excited to learn how to read the label and tell the total amount of carbohydrate, and the amount of complex and simple carbohydrate (sucrose). They both checked a number of boxes. One was happy to learn that Rice Chex (which her daughter likes) has only 2 grams of simple sugar. The other participant indicated that her children like cereal with all the pictures on it. She felt that now she could continue to check the labels and each time try to reduce the grams of simple sugar in each serving.
The supermarket tour provided the chance for the participants to ask questions about using private brand labeled foods. They were concerned about iodized versus non-iodized salt, and had questions concerning which to buy. One participant asked if it was okay to use the store brand salt? This provided the chance to show that store labeled foods can be a good choice economically. Substituting rice and beans for meat was a message in the slide/tape show. While on the supermarket tour, one participant indicated that she has felt better about substituting rice and beans for meat since the workshop, because now she knew it was still a healthy meal even without meat.

Buying whole chicken instead of pre-cut chicken was also a message in the slide/tape show. One of the participants had bought whole chicken since the workshop. The whole chickens were only $0.69 per pound on the tour, so she bought another.

Another workshop message was to increase use of vegetables and to try new items. The supermarket tour allowed participants to exchange recipes and resulted in one participant buying beets to try as a new vegetable for their diets.

Changing from lard to vegetable oil was increased by the supermarket tour. One of the participants thought she had been buying the ones made without lard. However, the ones labeled "low-fat" actually contained lard. This provided the chance to show her the "vegetarian" product made without lard. We also looked at the new refried beans which are made without any fat or oil.
Although the supermarket tour may not have specifically increased behavior change in the area of reducing the amount of oil used in cooking, it provided many opportunities to discuss it. One participant said that when the lard from the pig which they just killed is gone, she is going to switch to vegetable oil. She has also tried to use less of any fat when cooking.

Because the supermarket tour provides the chance to walk through the store and ask questions in a very informal setting, the possibilities for positive behavioral change to occur are greatly increased.

**Limitations**

The results from this study cannot be generalized to all Mexican-Americans. The use of only one location and the small sample size are limiting factors. The participants had received some nutrition education from the WIC program and their exposure to other nutrition education information could not be controlled.

The written pre-test may have been a limiting factor for some participants where literacy was a problem. In addition, the degree to which participants were influenced by the cultural factor "simpatía" (i.e., trying to respond as favorably as possible) during the post-test could not be determined.

Another limitation to interpreting the results is that the follow-up phone call was three weeks after the program, and thus long term change was not assessed.
Implications

Through the results of this study, it appears that conveying a connection between the health of children and their diet motivates Mexican-American mothers to change their children's diet. The group discussion results indicate that the use of Spanish, the preferred language by a majority of the participants, was an important factor in bringing about change. Decreasing any language barrier improved the chance for recognition of the program messages and motivation to participate. Emphasizing healthy traditional foods may also be a beneficial factor in motivating behavior change.

This study also showed that the population had substantial knowledge about economical food choices prior to the workshop. However, all of the participants indicated that the program had helped them save money. Thus even if their knowledge of economical food choices is high, it is possible that reinforcement helped to increase their awareness of money saving possibilities. The economical food choice information may be more beneficial to more recent immigrants.

A follow-up supermarket tour was shown to be beneficial. It was a chance for participants to get hands-on experience in finding the most nutritious, lower fat and most economical products. A paraprofessional could be trained to teach the basic tour in Spanish. To answer special questions a nutrition expert or home economist could accompany the tour. Training of a paraprofessional for the basic tour and translation of only the special questions for the professional's responses
would ensure continuity of the program. An additional way to deal with questions which the paraprofessional might not be able to answer would be to take note of the questions and follow-up with a letter or phone call in Spanish. Establishing rapport with participants could increase the supermarket tour attendance. This may be accomplished by having one or two classes prior to the supermarket tour invitation. Providing transportation and child care may also help increase participation.

The results from this study indicate a low consumption of vegetables in this population. More emphasis should be placed on the importance of vegetables in future nutrition education programs. A program which uses culturally appropriate methods and conveys the importance of vegetable consumption in a healthy child’s diet may be an effective method to increase vegetable consumption. Because other researchers (Romero-Gwynn et al., 1992) have indicated that an increase in vegetable consumption of Mexican-American immigrants is accompanied by an increase in high fat salad dressing, an education program should also address this problem.

It was evident from the supermarket tour that the participants were very interested in learning what nutrition information appears on food labels and how to make use of labeling in making better food choices. A program which addresses how to read and understand food labels would be very beneficial. To ensure more control over the learning environment, a classroom label-reading workshop could be designed using actual food labels.

In addition to being beneficial to new immigrants, the Compre Comida
Saludable workshop can serve as a possible starting point for nutrition education for all Mexican-American families who speak Spanish. It could then be followed by a label reading course, by a low-fat cooking class or by a supermarket tour depending on the availability of facilities and Spanish speaking personnel. Additional programs should continue to utilize a family-orientation approach.

Information from the literature and the Hispanic round table indicate that the use of radio would be an effective way to reach Spanish speaking audiences. Marketing researchers (Guernica, 1982) indicate that radio reaches 100% of the Spanish speaking population. This may be an effective way to reach the part of the population who may otherwise be difficult to recruit to attend nutrition education programs. We did not use this method because of the difficulty in evaluating a radio education program.

**Recommendations for Future Research**

One of the challenging areas in this study was measuring the attitudes of participants regarding the relationship between diet and health. Development of a reliable tool for these measurements would be very useful in working with this target group. As researchers, we must be aware of the limitations of our instruments. Future research may find that the use of anthropological methods such as more in-depth ethnographic research may provide more useful information in the areas of attitudes.
The development for this nutrition education program was based on the high concern Mexican-American families have for the health of their children, which can be described as a high degree of perceived susceptibility and a possible motivating factor of behavior change for Mexican-Americans parents. This information was obtained through the literature and the Hispanic round table discussion. Future research should test each of the components of the Health Belief Model (Janz, 1984) for Mexican-Americans. This would aid in identifying points of resistance or areas to target to bring about behavioral change in the Mexican-American population. Programs could also focus on increasing the degree of perceived susceptibility for the adult Mexican-American.

Future research could also include regional adaptations of the "Compre Comida Saludable" program for Mexican-Americans living in other areas of the United States. Area specific or regional adaptations could be made and utilized in programs for migrants. It has been noted that in different areas of the United States some of the foods being encouraged are not as readily available.
SUMMARY

A culturally appropriate, theoretically-based supermarket nutrition education program for Mexican-Americans Northwest was developed and assessed. The "Compre Comida Saludable" program was presented to Mexican-American WIC mothers in Woodburn, Oregon.

The Health Belief Model provided the framework to identify factors to motivate behavior change. It indicated that emphasizing the health of children and addressing the cultural modifying factors (knowledge about diet and health, language specificity or using Spanish, importance of the family orientation, healthy traditional foods, and a chance to become familiar with new products) could result in an effective education program for Mexican-Americans.

The key educational messages of Compre Comida Saludable were: 1) to strive for balance, variety, and moderation in the diet; 2) to make low-fat food choices; and 3) to make economical food choices. These messages were chosen from past research and an Hispanic roundtable discussion held in Hood River, Oregon.

The results of this study indicate that conveying a connection between the health of children and their diet motivates Mexican-American mothers to change their child’s diet. Eighty-four percent of the WIC mothers indicated that they had made changes in the diet of their child as a result of the workshop. The changes reported included: decreasing the amount of fat in cooking, increasing the variety in
their child's diet, adding a traditional milk and juice drink, removing the skin from chicken, increasing vegetable intake reducing the amount of added sugar, and switching to lower fat milk.

The results of this study indicate that the "Compre Comida Saludable" program was effective in communicating information about nutritious and economical food choices. All (100%) of the participants indicated that the program had helped them plan more nutritious meals for their families. Changes made in their child's fat consumption behavior were: removal of the fat from hamburger, removal of the skin from chicken, a switch to low-fat milk, and a switch from lard to vegetable oil.

Even though the participants' knowledge pre-test score about food cost was higher than expected, all participants indicated that the workshop helped them to save money. A statistically significant (p < .001) difference was found between the knowledge pre-test and knowledge post test of economical food choices. The participants indicated that they were more aware of economical choices and had saved money by looking for special sales, buying larger packages, comparing prices, buying whole chicken instead of pre-cut chicken, buying chicken instead of beef, and using a shopping list.

This study indicated the supermarket tour component may have been an important part of this nutrition education program for Mexican-Americans. It provided the chance for the participants to become more familiar with the variety of food choices and develop point-of-purchase decision making skills. The participants
were assured that they were buying what they had intended to buy and were also able to get answers to other nutritional questions.

In conclusion, the Compre Comida Saludable program will be beneficial to nutrition educators working with the Mexican-American population. Nutrition education program development should continue to utilize theoretical models such as the Health Belief Model (Janz and Becker, 1984) as a framework to address factors which will foster positive health behavior change.
BIBLIOGRAPHY


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APPENDICES
Appendix A

Hispanic Roundtable Questions and Responses
Questions for the Hispanic Roundtable
held in Hood River, Oregon

1. Who are Hispanics in Oregon?
   Where are they from?
   How long have they been here?
   Family structure (age, # of children)
   Education level?
   Income status?

2. In what language are TV programs watched?
   Is radio listened to? Are books and magazines read?

3. Are they literate in English? In Spanish?

4. What distinct sub-groups can be identified based on characteristics?

5. What are Hispanics' life priorities? (Public Health Reports).


7. Many health conditions are linked to food intake. What are their meal patterns?
   When do they eat during the day?
   Where do they eat?
   What do the eat?
   What traditional foods are they most likely to retain in their diets?
   What U.S. foods are they likely to add?
   Are they getting the nutrients the need? Ca, vitamins A, C

8. Where do they shop for food? How often?
9. Who prepares the food?

10. What are the food preparation facilities like? Is there running water, refrigerators, stoves, TV, Phone?

11. Do they handle food safely?

12. Which sub-group should the OSU Extension Service try to reach with nutrition education?

13. What should be the focus of the programming? Food Safety, Nutrition, Food labeling?

14. Should the education be family-oriented? Youth-oriented? Bilingual?

15. How could this group be reached?
   Mass media: radio; newspaper
   Classes: Where; when; who
   Publications: where to distribute
   Supermarket tours

16. What are some potential barriers to success?
   low literacy skills?
   health belief? (foods proscribed for illness, pregnancy, or lactation)
   family dynamics?
Response in Main Categories from the Hispanic Roundtable

1. **Low education - Low literacy level:** Sister Mary Cordman from St. Marys Catholic Church said, "Hispanics in this area have only a very low level of education and many have had none". Others agreed and mentioned a need to use graphics and visual aids due to low literacy. They advised not focusing too much on written materials.

2. **Low income:** Maria Ramirez, an outreach worker with La Clinica, stated that, "Hispanics don't eat enough because they don't have the money to buy nutritious food. They work in the fields and are very poor between seasons."

   Extension professional Carolin Cannon indicated that "Hispanics are at a survival level and economics is an important factor to consider in any educational message."

3. **Family unit:** Margery Dogatch from La Clinica said, "The health of children is important". Many participants agreed that the health of children was important to both parents. Doris Galvez from the Health Department and Children Services Division thought young couples would be an easy group to reach because they want to learn. Others mentioned that couples do shop together, so it would be good to include the males.

4. **Basic nutrition/ Health concerns:**

   Isabel Mexicano, an outreach worker from La Familia Sano said, "Our problems begin when we are pregnant, and the child is affected. We eat things that make us gain weight and don't give us good nutrition and sometimes there is no money".

   Noel Wiggins, director of El Niño Sano, comments that they have found a number of overweight children between the ages of 2 and 3. Margery Dogatch indicates that the need to learn to cook with less fat exists. Antonia Sanchez, a health promoter who works with AIDS education, indicates a need to show how to reduce fats and sugars in the diet. Doris Galvez states, "When people first come to the United States they see all the fast food and don't realize it's not good for you". Other nutritional related health problems which were mentioned including lack of variety in the diet and low amounts of iron rich foods.
Cultural Consideration:

Diego Leon from the Employment Division suggests focusing on changes which can be made without changing the entire diet. Others agree that keeping the traditional diet is important.

John Alley, local grocery store owner, sees language as a barrier to communication in the supermarket, and indicates that they would love to have information available in Spanish.

Others indicate that new arrivals ("migrants") have a difficult time. They may go to the store and have no idea of what to buy.

Diego Leon felt that the supermarket may be a good location to reach people.
APPENDIX B

Compre Comida Saludable Slide Set Script

Spanish and English Versions
## COMPRE COMIDA SALUDABLE/BUY HEALTHY FOOD

<table>
<thead>
<tr>
<th>Compre Comida Saludable</th>
<th>Slide Description</th>
<th>Buy Healthy Food</th>
</tr>
</thead>
<tbody>
<tr>
<td>Push tape to start.</td>
<td>Put on Slide 1.</td>
<td>Push tape to start.</td>
</tr>
<tr>
<td>5. Eso fue Grupo Modelo con &quot;Marisala.&quot; Y ahora un anuncio para todos los padres: ¡Padres! ¿Sabían que los alimentos que sus niños comen afectan su salud? El comer bien les ayudará a crecer bien y mantener su salud.</td>
<td>Mother and Father making out grocery list</td>
<td>5. That was Grupo Modelo with &quot;Marisala.&quot; And now a message for parents: Parents, did you know that the foods your children eat affect their health? Eating right will help them to grow well and stay healthy.</td>
</tr>
<tr>
<td>6. Una buena variedad de comidas en cantidades moderadas les dará la dieta balanceada que necesitan.</td>
<td>Close up of list</td>
<td>6. A wide variety of foods in moderate amounts will give children the balanced diet that they need.</td>
</tr>
<tr>
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</tr>
<tr>
<td>7. Hoy en el supermercado Richeys, El Oregon State University Extension Service está ayudando a las familias a escoger las comidas económicas y beneficiosas para la salud de sus niños. Reúñase con Teresa Morales para una gira en el supermercado hoy y compre comida saludable.</td>
<td>Mother and Father</td>
<td>7. Today at Richey’s supermarket, the Oregon State University Extension Service is helping families choose foods that are good buys and also good for your children’s health. Join Teresa Morales for a supermarket tour today; and Buy Healthy Food!</td>
</tr>
<tr>
<td>12. ¡Hola! Me llamo Teresa. Estoy ayudando a las familias a comprar comidas que sean buenas para la billetera y la salud.</td>
<td>Nutrition booth</td>
<td>12. Hello, I’m Teresa. Today I’m helping families buy groceries that are good for their pocketbook and for their health.</td>
</tr>
<tr>
<td>14. Querán comprar comidas que sean buenas para la salud de sus niños. Así que empecemos con lo básico, tal vez eso ayudará a contestar sus preguntas.</td>
<td>Teresa and Mother</td>
<td>14. You’ll want to buy foods that are good for your children’s health, so let’s start with the basics. Maybe that will help answer your questions.</td>
</tr>
<tr>
<td>15. Para que nuestros niños crezcan fuertes y saludables, necesitan 5 tipos de comida cada día; Pan, Tortillas, y Granos; Frutas; Verdurás; Leche y Productos de Leche; y Carne, Frijoles, y Huevos. Me alegro que tengan una lista de compras. Revisemos lo que tienen en su lista.</td>
<td>Graphic of all food groups</td>
<td>15. For our children to grow up strong and healthy, they need 5 types of food each day: Breads/Tortillas/Grains; Fruits; Vegetables; Milk/Milk Products; and Meat/Beans/Eggs. I’m glad you have a shopping list. Let’s see if you have these on your list.</td>
</tr>
<tr>
<td>17. También tienen fruta en su lista. Vamos a ver cuáles frutas son buenas compras hoy. Los niños necesitan comer frutas todos los días. También es muy importante comer frutas que contienen vitamina C cada día.</td>
<td>Graphic: Fruits</td>
<td>17. You also had fruit on your list. We’ll see which fruits are good buys today. Children need to have fruit every day. It’s also important to include fruit high in vitamin C each day.</td>
</tr>
<tr>
<td>Number</td>
<td>Spanish Text</td>
<td>English Translation</td>
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<tr>
<td>--------</td>
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<td>----------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>18.</td>
<td>Necesitan papas. Las papas son verduras. Las verduras, como las frutas, tienen vitaminas que ayudan a los ojos y la piel de los niños.</td>
<td>You need potatoes. These are a vegetable. Both fruits and vegetables have vitamins that help children's eyes and skin.</td>
</tr>
<tr>
<td>19.</td>
<td>Tienen leche y queso en su lista. Los productos hechos de leche son importantes para los huesos y los dientes de los niños.</td>
<td>You have milk and cheese on your list. Milk and products made from milk are important for children's bones and teeth.</td>
</tr>
<tr>
<td>20.</td>
<td>El pollo pertenece al grupo de Carne, Frijoles, y Huevos. Estas comidas proveen mucha proteína que ayuda a los niños a crecer.</td>
<td>Chicken is in the Meat/Beans/Eggs group. These foods provide a lot of protein which helps children to grow.</td>
</tr>
<tr>
<td>21.</td>
<td>Tienen una buena combinación de los cinco tipos de comidas que se necesitan para estar saludable y crecer fuerte. Vamos a hablar de maneras para incorporar más variedad en las comidas y evitar comer mucho de una sola cosa.</td>
<td>So you have a good balance of all types of food that are needed to stay healthy and grow up strong. We'll talk about ways that you might add more variety, which helps to avoid eating too much of any one thing.</td>
</tr>
<tr>
<td>22.</td>
<td>¡Sí, Pepe! Si tú comes estas comidas también crecerás fuerte! Estas comidas también te darán energía para jugar duro y aprender bien.</td>
<td>Yes, Pepe, if you eat these foods you will grow up strong too! These foods will also help provide energy for you to play hard and learn well.</td>
</tr>
<tr>
<td>23.</td>
<td>Empecemos con el grupo de Pan, Tortillas, y Granos. Hay muchas selecciones en este grupo.</td>
<td>Let's start out with the Breads/Tortillas/Grains group. There are many choices in this group.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Whole wheat Bread</th>
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</thead>
</table>

24. Sometimes you might choose to eat bread. Like other Breads/Tortillas/Grains, it provides fiber which helps with digestion. Whole grain bread is the best choice.

25. Ahora busquemos el arroz.

<table>
<thead>
<tr>
<th>Going down aisle</th>
</tr>
</thead>
</table>

25. Let's look for the rice now.


<table>
<thead>
<tr>
<th>Mother with rice</th>
</tr>
</thead>
</table>

26. Rice is also a part of this group, and it's a good start to having a healthy diet. You just have to remember not to use too much oil when cooking it. This will make it even healthier.

27. ¿Está buscando fideos? A veces es difícil encontrar la comida a que estamos acostumbrados, como los fideos.

<table>
<thead>
<tr>
<th>Father looking for fideos</th>
</tr>
</thead>
</table>

27. Are you looking for the fideos? Sometimes its hard to find the things you're used to eating, like fideos.

28. Pero puede substituir cualquier tipo de fideos, o macarronies, como éstos. En vez de tostarlas con manteca, pruébalos tostadas con sólo un poco de aceite.

<table>
<thead>
<tr>
<th>Different types of noodles</th>
</tr>
</thead>
</table>

28. But you can substitute any type of noodles, like these. Instead of toasting them with lard, you could try toasting them with just a little oil.

29. No olvides los frijoles. Frijoles con arroz es la base tradicional de nuestra dieta. Lo cual es saludable y económico.

<table>
<thead>
<tr>
<th>Teresa and beans</th>
</tr>
</thead>
</table>

29. Don’t forget the beans. Beans and rice are the traditional base of our diet, and they’re a healthy and low-cost choice.
<table>
<thead>
<tr>
<th><strong>30.</strong> También necesitan tortillas. Aquí hay unas. ¿Suelen comprar de la sección de comidas mexicanas?</th>
<th><strong>Tortillas</strong></th>
<th><strong>30.</strong> You needed tortillas, too. Here they are. Do you ever buy foods in the Mexican food section?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>31.</strong> Los frijoles enlatados son convenientes pero pueden costar más. El tipo hecho sin manteca es el mejor para la salud. La etiqueta le puede dar esta información. A veces dice &quot;vegetarian&quot; o vegetariano para decir que no contiene manteca.</td>
<td><strong>Canned beans</strong></td>
<td><strong>31.</strong> Canned beans are convenient but can cost a lot more. The kind made without lard is best for good health. You can get this information from the label. They may have &quot;vegetarian&quot; written on them, which means they don’t contain lard.</td>
</tr>
<tr>
<td><strong>32.</strong> ¿Qué tipo de cereal van a comprar? Pepe, yo sé que los niños les gustan los cereales con mucho azúcar.</td>
<td><strong>Kids reaching for cereal</strong></td>
<td><strong>32.</strong> What type of cereal are you going to buy? Pepe, I know you kids like cereals with lots of sugar.</td>
</tr>
<tr>
<td><strong>33.</strong> Pero los que no contienen azúcar y los que tienen poco azúcar son mejores para sus dientes. Si comes mucho cereal, las cajas grandes son una mejor compra.</td>
<td><strong>Larger box of no or low sugar cereal</strong></td>
<td><strong>33.</strong> But the ones with no sugar or less sugar are better for your teeth. If you eat a lot of cereal, the larger boxes will give you more for your money.</td>
</tr>
<tr>
<td><strong>34.</strong> Es importante empezar cada día con un buen desayuno. Otra comida buena para el desayuno es avena cocida o crema de trigo con leche. Esto es parecido a nuestro atolé tradicional.</td>
<td><strong>Teresa with oatmeal</strong></td>
<td><strong>34.</strong> It’s important to start each day with a good breakfast. Another good breakfast is cooked oatmeal or cream of wheat with milk. This is similar to our traditional atolé.</td>
</tr>
<tr>
<td><strong>35.</strong> Ya tenemos mucha comida del grupo de Pan, Tortillas, y Granos; como el arroz, los fideos, y el cereal para el desayuno.</td>
<td><strong>Grocery list: Breads checked off</strong></td>
<td><strong>35.</strong> We now have a lot of food from the Breads/ Tortillas/Grains group, like: rice, noodles, and breakfast cereal.</td>
</tr>
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</tr>
<tr>
<td><strong>36. Ahora busquemos la fruta.</strong></td>
<td><strong>Overview of fruit section</strong></td>
<td><strong>36. Let’s look for the fruit next.</strong></td>
</tr>
<tr>
<td><strong>37. Es importante comer una variedad de frutas diferentes como naranjas, manzanas, peras y plátanos o bananas. Casi todas las frutas tienen muchas vitaminas.</strong></td>
<td><strong>Teresa and Pepe with fruit</strong></td>
<td><strong>37. It’s important to eat a variety of different fruits, like oranges, apples, pears or bananas. Most fruits have lots of vitamins...</strong></td>
</tr>
<tr>
<td><strong>38. Y son una buena selección cuando los niños quieren algo de comer entre comidas. Los niños no pueden comer las misma cantidad que los adultos en las comidas, así que necesitan comer bocadillos saludables durante el día.</strong></td>
<td><strong>Kids with fruit</strong></td>
<td><strong>38. ...and are a good choice when kids want something sweet to snack on between meals. Kids eat smaller amounts at meals than adults, so it’s important that they have healthy snacks during the day.</strong></td>
</tr>
<tr>
<td><strong>39. Las frutas y verduras cuestan menos cuando se siembran localmente y en las temporadas cuando son abundantes. Las frutas que vienen de lejos pueden ser más caras.</strong></td>
<td><strong>Traditional fruit, papayas and mangos</strong></td>
<td><strong>39. Fruits and vegetables cost less during the time when they are plentiful and locally grown. Those which are shipped long distances, or imported may cost more.</strong></td>
</tr>
<tr>
<td><strong>40. Las papas son verduras y son la próxima cosa en su lista. Hay muchos tipos de verduras, y todos son importantes en la dieta de los niños.</strong></td>
<td><strong>Teresa and potatoes</strong></td>
<td><strong>40. Potatoes are a vegetable and that’s the next thing on your list. There are lots of different kinds of vegetables, and all of them are important in a child’s diet.</strong></td>
</tr>
<tr>
<td>Sentence</td>
<td>Image</td>
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</tr>
<tr>
<td>41. Comer ensalada es un modo fácil de incluir diferentes tipos de verduras en su dieta. Los niños pueden ayudar a lavarlas y prepararlas, y pueden comer zanahoria, apio, o ajíes dulces, cortados en pedacitos como bocadillos.</td>
<td>Kids with green peppers and carrots</td>
<td>41. Having a salad is an easy way to include different types of vegetables in your diet. Children can help to wash and prepare them, and they can eat carrot, celery, or green pepper sticks as a snack.</td>
</tr>
<tr>
<td>42. Pero cuando comen ensalada, no usen demasiado aderezo o &quot;Salad dressing&quot; porque contiene grasa y eso daña la salud.</td>
<td>Teresa with salad dressing</td>
<td>42. But when you have a salad, don’t use too much salad dressing because it may have a lot of fat in it, and that’s not good for our health.</td>
</tr>
<tr>
<td>43. Puede ser que las verduras cocidas son más fáciles de comer para los niños. Es importante incluir verduras de color verde oscuro y amarillas como calabaza, y ejotes. Son muy buenas en la sopa. ¿Te gusta la sopa, Cristina?</td>
<td>Teresa and Cristina</td>
<td>43. Cooked vegetables might be easier for children to eat. It’s important to include dark green and dark yellow vegetables like squash and string beans in your diet. They’re good in soups. Do you like soup, Cristina?</td>
</tr>
<tr>
<td>44. Aquí están las frutas y verduras enlatadas. Estos son fáciles de usar, y pueden ser buenas selecciones en el invierno.</td>
<td>Canned fruits and vegetables</td>
<td>44. Here are the canned fruits and vegetables. They’re easy to use, and can also be a good choice in the winter.</td>
</tr>
<tr>
<td>45. Las marcas enlatadas por grandes compañías nacionales pueden ser más caras. Pruebe las marcas más baratas. Puede ser bueno probar cosas nuevas.</td>
<td>Private label</td>
<td>45. Brands canned by large national companies may cost more. Try those that cost less. It can be fun to experiment.</td>
</tr>
<tr>
<td>46. También puede comprar frutas y verduras congeladas. Estas también pueden ser una buena selección.</td>
<td>Teresa</td>
<td>46. You can also buy frozen fruits and vegetables. They too, may be a good choice.</td>
</tr>
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</tr>
<tr>
<td>47. Bueno. Ya tenemos comidas de los grupos Pan, Tortillas, y Granos; de Frutas; y de Verduras.</td>
<td>List with Breads, Fruits, and Vegetables checked off</td>
<td>47. Now we have foods from the Breads/Tortillas/Grains group; the Fruit group; and the Vegetable Group.</td>
</tr>
<tr>
<td>48. Aquí tenemos Leche y Productos de Leche. Estos ayudan a crecer y fortalecer los huesos de los niños. Necesitan tres porciones cada día. Una porción para un niño es igual a una tasita de leche o un pedazo de queso.</td>
<td>Milk</td>
<td>48. Here we have Milk and Milk Products. These help children's bones grow strong. They need 3 servings a day; a serving for a child is a small glass of milk or a piece of cheese.</td>
</tr>
<tr>
<td>49. La mayoría de la leche está pasteurizada. Esto quiere decir que se ha matado la bacteria en la leche calentándola. No compre leche cruda, no está pasteurizada y puede hacer daño a los niños.</td>
<td>Teresa in front of milk</td>
<td>49. Most milk is pasteurized so that bacteria have been killed by heat. Don’t buy raw milk. It’s not pasteurized and it’s not good for kids.</td>
</tr>
<tr>
<td>50. Diferentes tipos de leche tienen diferentes cantidades de grasa. Leche descremada tiene poca grasa y es más saludable. Además cuesta menos que la leche con toda su crema. Se pueden encontrarlo en la tienda como, &quot;low-fat&quot; o &quot;non-fat.&quot;</td>
<td>Skim 1% and 2% milk</td>
<td>50. Different kinds of milk have different amounts of fat. Low-fat milks are the healthiest and they can also cost less. You can find it in the store labeled as &quot;low-fat&quot; or &quot;non-fat.&quot;</td>
</tr>
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</tr>
<tr>
<td>51. Te rinde más el dinero cuando compras la leche en tamaños grandes.</td>
<td>Teresa con un galón de leche</td>
<td>51. You get more for your money when you buy milk in larger containers.</td>
</tr>
<tr>
<td>52. El queso también es un producto de la leche y se puede usar como un bocadillo saludable para los niños, como en las quesadillas.</td>
<td>Madre alcanzando el queso</td>
<td>52. Cheese is also a milk product and can be used as a healthy snack for children, like in quesadillas.</td>
</tr>
<tr>
<td>53. Hay muchos tipos de queso. Algunos mercados venden queso blanco pero es caro. El queso que viene dividido en pedazos también es más caro.</td>
<td>Queso precocinado</td>
<td>53. There are lots of types of cheeses. Some stores might carry a traditional queso blanco but it will be expensive. Cheese that has been presliced will also cost more.</td>
</tr>
<tr>
<td>54. Tal vez quieren probar el queso mozzarella que es bueno para la salud porque contiene menos grasa.</td>
<td>Mozzarella</td>
<td>54. You might want to try mozzarella, which is better for your health because it has less fat.</td>
</tr>
<tr>
<td>55. Es más saludable usar el yogurt regular con poca grasa en los platos donde se acostumbra usar crema agria, como en las enchiladas o burritos.</td>
<td>Yogur sin grasa</td>
<td>55. It's healthier to use low-fat plain yogurt in the dishes where you traditionally used sour cream, like in enchiladas or burritos.</td>
</tr>
<tr>
<td>56. Finalmente tenemos que buscar las comidas del grupo de Carne, Frijoles, y Huevos. Estas comidas contienen proteína que ayuda a crecer a los niños.</td>
<td>Sección de carnes</td>
<td>56. Last, we need to look for foods from the Meat/Beans/Eggs group. These foods contain protein which helps children to grow.</td>
</tr>
<tr>
<td>57. La carne puede ser muy cara, así que es importante buscar las rebajas.</td>
<td>Sale of Meat</td>
<td>57. Meat can be expensive, so it's important to watch for sales.</td>
</tr>
<tr>
<td>---</td>
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</tr>
<tr>
<td>58. El pollo es una de las carnes más económicas. Es más barato comprar el pollo entero. Pues cuesta más cuando la tienda lo corta y lo separa.</td>
<td>Chicken</td>
<td>58. Chicken is one of the least expensive meats. It's usually cheapest to buy whole chicken because it costs more when the store cuts it up.</td>
</tr>
<tr>
<td>59. La mayoría de la grasa en el pollo está en la piel, así que es más saludable quitarle la piel antes de cocinarlo.</td>
<td>Teresa’s face</td>
<td>59. Most of the fat is in the skin of the chicken, so it is healthier to remove it before cooking.</td>
</tr>
<tr>
<td>60. La carne molida &quot;regular&quot; también es económica. Asegúrese de vaciar la grasa cuando la cocine.</td>
<td>Ground beef</td>
<td>60. Regular ground beef is also less expensive. But be sure to pour off the fat when you cook it.</td>
</tr>
<tr>
<td>61. Recuerden que sólo necesitamos un par de porciones del grupo de Carne, Frijoles, y Huevos cada día. Es saludable comer sus porciones distribuidas durante el día. Una hamburguesa pequeña, o un pedazo de pollo es igual a una porción.</td>
<td>Family</td>
<td>61. Remember we only need a couple of servings from the Meat/Beans/Eggs group each day. A small hamburger patty or a piece of chicken would be one serving. It’s healthy to eat a small amount a couple times a day.</td>
</tr>
<tr>
<td>62. A los niños les gusta la carne empaquetada como los hot dogs, y carnes frías, pero no deben comer demasiado de éstos porque algunos contienen mucha grasa.</td>
<td>Kids and hot dogs and lunch meat</td>
<td>62. Children enjoy meat in packages, like hot dogs, and bologna, but they shouldn’t eat too much because some are high in fat.</td>
</tr>
<tr>
<td>---</td>
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<td>---</td>
</tr>
<tr>
<td>63. No toda las comidas que ayudan a crecer a los niños se encuentran en la sección de carnes. Huevos contienen los mismos nutrientes que se hallan en la carne. Así que se pueden usar en vez de carne. Un huevo grande se puede substituir por una porción de carne para un niño.</td>
<td>Teresa and Kids in front of eggs</td>
<td>63. Not all foods that help children grow are found in the meat section. Eggs contain the same nutrients found in meat. So you can use them instead. One large egg can take the place of a serving of meat for a child.</td>
</tr>
<tr>
<td>64. Las sardinas también contienen proteína y son otra alternativa para la carne. Las sardinas enteras contienen calcio, el cual los niños necesitan para fortalecer sus huesos.</td>
<td>Teresa close up</td>
<td>64. Sardines also contain protein and are another meat alternative. Whole sardines provide calcium which children need for their bones.</td>
</tr>
<tr>
<td>65. Recuerden, ya tienen en la carreta una excelente alternativa para la carne. Frijoles y arroz juntos se pueden comer en vez de carne.</td>
<td>Rice and Beans in cart</td>
<td>65. Remember, You already have an excellent meat alternative in your basket. Beans and rice eaten together can be used in place of meat.</td>
</tr>
<tr>
<td>66. Así que hemos obtenido comidas de los grupos de Pan, Tortillas, y Granos; de Frutas; de Verduras; de Leche y Productos de Leche; y del grupo Carne, Frijoles, y Huevos.</td>
<td>List with everything checked off</td>
<td>66. So now we have foods from the Breads/Tortillas/ Grains group; the Fruit group; the Vegetables group; the Milk and Milk Products group; and the Meat/Beans/Eggs group.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>67. Aquí veo la manteca. Quise decirles algo sobre eso. Nosotros acostumbramos a usar manteca para freír frijoles, y cocinar otras cosas, pero...</td>
<td>Lard</td>
<td>67. Oh, I see the lard here, I wanted to tell you a little about that. We usually use lard to refry beans and to cook a lot of foods but...</td>
</tr>
<tr>
<td>68. Los aceites vegetales son más saludables que la manteca. Recuerden no usar demasiado de cualquier grasa.</td>
<td>Teresa with Mother</td>
<td>68. Vegetable oils are healthier than lard. Still remember not to use too much of any fat.</td>
</tr>
<tr>
<td>69. Ah, veo que los niños tienen sed. Pero es probable que la soda no sea el mejor remedio.</td>
<td>Children looking at the soda pop</td>
<td>69. Oh, I see the children are getting thirsty. But soda pop may not be the best choice.</td>
</tr>
<tr>
<td>70. Volvemos a la casita a probar un jugo antes de que se vayan.</td>
<td>Teresa and children</td>
<td>70. Let’s go back to the nutrition booth and have some juice before you go.</td>
</tr>
<tr>
<td>71. Y cuando estén en casa pueden agregarle leche para hacer un licuado.</td>
<td>Kids with drink</td>
<td>71. And when you’re at home, you could add milk to it, and make it like a licuado.</td>
</tr>
<tr>
<td>72. Mira, hasta Pepe le gusta un bocadillo saludable. Recuerden Comprar Comida Saludable, porque ahora ya saben que se necesitan 5 tipos de comida cada día para mantener su salud. Y el comer bien les ayudará a crecer fuertes y sanos.</td>
<td>Kids with thumbs up</td>
<td>72. Look... even Pepe likes a healthy snack. Remember to &quot;Buy Healthy Foods,&quot; now you know that we need 5 types of food each day to maintain our health. And eating right will help you to grow up strong and healthy.</td>
</tr>
<tr>
<td>Sentence</td>
<td>Action</td>
<td>Credit</td>
</tr>
<tr>
<td>----------</td>
<td>--------</td>
<td>--------</td>
</tr>
<tr>
<td>73. Música empieza</td>
<td>Family at checkout stand</td>
<td>73. Music starts.</td>
</tr>
<tr>
<td>80. Música desvanece.</td>
<td>OSU Extension</td>
<td>80. Music fades</td>
</tr>
</tbody>
</table>

Developed by Tina Saldaña, graduate student, with Carolyn Raab, Extension Foods and Nutrition Specialist, Oregon State University.
Muchas Gracias:

Directora: Tina Marie Saldaña
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Muchas Gracias:

Richy’s Supermarket
Corvallis, Oregon

The Landin Family
Rosa Zavala de Erlebach

Kay Garcia
Mario Magaña
Luis Machorro
Appendix C

Informed Consent Statement
Hello. My name is Tina Saldaña. I'm a graduate student in the Nutrition and Food Management Department at Oregon State University. For my Master's degree research project, I'm developing a supermarket nutrition education program for Hispanic families in Oregon.

Food shopping can be a challenge for all of us, but especially when foods are unfamiliar and labels are written in a different language. Our "Compre Comida Saludable" program will help you make the best food choices for your family.

Home economists with the Oregon State University Extension Service will be presenting the program to Hispanic families in their counties around Oregon. But first, we want to make sure that the program is appropriate for Hispanic audiences.

You can help us by participating in this pilot-test. I'll show you a slide set that shows an Hispanic family taking a supermarket tour. Then we'll talk about buying foods at the supermarket.

We'll begin with a short questionnaire that will tell us more about the foods that your family buys. This information will be used to evaluate the program and plan other programs that might be of interest to Hispanic families in Oregon. Your responses will be kept confidential.

If you have a phone and would be willing to answer a few questions, please write your phone number on the questionnaire. I'll call you in 2 weeks and talk to you for about 10 minutes in Spanish. If you'll write down your first name also, I'll be able to ask for you by name. Your name will not be associated with your answers when I analyze my data.

If you'd rather not participate, that's fine. You won't be penalized by WIC if you choose not to participate.
Appendix D

Workshop Group Discussion and Responses
Group Discussion Questions

Food Group Questions:
1. How many types of foods do children need each day? Have you heard of these before?

2. What are the groups? In each group which foods are your child's favorite items?

Economical Food Choice Questions:

3. Which one is most economical?
   - Low-fat or whole milk?
   - Small or large box of cereal?
   - Gallon or quart of milk?
   - Cut or Whole chicken?
   - Prepackaged or block cheese?
   - Local or Imported fruit?

Reaction to Slide/Tape Show Questions:

4. Do you think that the information about how to get the best buys will help other families?

5. Do you think the information about which foods children need to be healthy will help other families?

6. Do you think the information on using a shopping list will help other families?

7. What was the most useful from the program?

8. Did you like the fact that the program was in Spanish?

9. Are there other topics which you would like to see covered in an educational program, which were not included in this one?

10. Where do you do your shopping and do your children accompany you when you go?
Selected Responses to Group Discussion Question following the "Compre Comida Saludable" slide/tape program at the Three Workshops:

Food Group Questions:

1. How many types of foods do children need each day? Have you heard of these before?
   * five (2 participants)
   * Oh, I'm using it at home, like it came out in the movie that you gave. I make it a habit to buy all kinds of foods and all the five groups.
   * Lots of times we are not well informed about the foods which are most healthy or most nutritious that we should eat. But, at least my wife and I through talks that we have heard through television shows including in Mexico are aware that those groups are the best food. We didn't know really that there are five groups but we did know of the foods that they include.
   * yes (2 participants)
   * here in WIC

2. What are the groups? In each group which foods are your child's favorite items?
   Breads Group:
   * noodle soup (3 participants)
   * Cheerios (3 participants)
   * corn tortillas (2 participants)
   * They eat almost everything.(3 participants)
   * tortillas (3 participants)
   * They like rice the most.
   * corn flakes, only every once in a while but they do eat them
   * fideos
   * oatmeal
   * rice and beans
   * Mine eat a lot of cereal and bread.
Vegetable Group:
* almost everything
* corn (2 participants)
* carrots (2 participants)
* all of them
* She eats soups, and she eats vegetables; she likes carrots and potatoes a lot.
* potatoes
* celery
* yes, carrots, corn, potatoes, almost all of the vegetables
* Mine like lettuce in salads with tomato and celery.
* potatoes and carrots

Fruit Group:
* He likes melons and pineapple a lot, and oranges
* Melon, bananas, pineapple, everything, the truth is they like everything.
* everything
* Bananas, are there others?
* Bananas, apples, nectarines, duraznos, these are the fruits they like.
* Mine like apples or oranges
* apples, platanos, oranges

Milk Group:
* They like cheese a lot (2 participants)
* Mine is two years old and I give her 2%
* yes (2 participants)
* My daughter loves cheese.
* the cheese they give me here, it doesn’t last a week.
* Mine like cheese quesadillas

Meat Group:
* My children like beef
* chicken (3 participants)
* beans
* eggs (4 participants)
* She likes chicken, but meat she only has the juice of what I make; but meat I don’t know if because she is lazy she doesn’t like to chew or what, but she doesn’t like meat.
* Yes, she eats beans
* Mine eat eggs, and beans
Economical Food Choice Questions: Reviewed the correct answers.

Reaction to Slide/Tape Show Questions:

4. Do you think that the information about how to get the best buys will help other families?
   a. yes (2 participants)

5. Do you think the information about which foods children need to be healthy will help other families?
   * Yes, because there are lots of people who don’t have knowledge of this, and a lot of times people don’t know and they are giving a lot of fat to children.
   * Yes it would be useful if it was expanded on, so that the families understand that they have to take classes and advise and ask about what foods are more nutritious. Yes, if it’s like this, it’s good but if it isn’t expanded if there isn’t more complete information, I think that things stay the same.
   * yes (2 participants)

6. Do you think the information on using a shopping list will help other families?
   * yes
   * It helps a lot because one goes without knowing what they are going to buy and takes home things that they don’t need.

7. What was the most useful from the program?
   * knowing that rice and beans are similar to meat
   * In general, it will be useful?
   * yes
   * everything
   * looking for specials

8. Did you like the fact that the program was in Spanish?
   * Oh yes clearly (most of the participants agreed)
   * It makes me have more confidence in answering questions.
   * I know that I’m understanding more.
9. Are there other topics which you would like to see covered in an educational program, which were not included in this one?
   * family hygiene
   * It should be expanded for older people like my parents are old, and they are used to eating differently. They don't know what they should eat. My mom is diabetic, and they are used to eating badly, and I'm taking care of her, and she doesn't like to eat the way she has to eat, like vegetables.
   * information on safety of microwaved foods
   * pesticides
   * nutrients in frozen vegetables and fruits
   * nutrients in instant rice

10. Where do you do your shopping and do your children accompany you when you go?
    * Roth's IGA (2 participants)
    * Shopping Kart (2 participants)
    * We always look for the cheapest store.
    * I always go to IGA. It's my favorite store
    * Roth's, or a new one Shopping Kart
    * It depends, now that they are big they say "I want this I want that"
    * yes
    * always
Appendix E

Pre-test and Post test Questionnaires
PREQUNTAS PARA "COMPRE COMIDA SALUDABLE"

Marque lo que es más económico.

P-1.

LECHE SIN CREMA  O  LECHE CON CREMA

LECHE SIN CREMA  LECHE CON TODO SU CREMA

P-2.

CAJAS PEQUEÑAS  O  CAJAS GRANDES

CEREAL EN PAQUETES PEQUEÑOS  CEREAL EN PAQUETES GRANDES

P-3.

LECHE  O  LECHE

LECHE EN GALÓN  LECHE EN CUARTO

P-4.

POLLO CORTADO EN PEDAZOS  O  POLLO ENTERO

P-5.

QUESO EN PAQUETES INDIVIDUALES  O  QUESO

QUESO EN PEDAZOS GRANDES

P-6.

FRUTAS LOCALES  O  FRUTAS DE LEJOS
CHECK ONE ANSWER FOR EACH QUESTION:

P-7. When your children eat chicken, how often do you remove the skin?
   ___ never
   ___ occasionally
   ___ usually
   ___ always
   ___ never eat chicken

P-8. What type of milk do your children usually use?
   ___ whole
   ___ chocolate
   ___ low fat
   ___ skim, nonfat, or powdered
   ___ never use milk
   ___ not sure

P-9. Which type of hamburger meat do your children usually eat?
   ___ regular
   ___ lean
   ___ extra lean
   ___ never eat hamburger
   ___ not sure

P-10. When your child eats refried beans, what type of fat are they made with?
   ___ lard
   ___ bacon grease
   ___ shortening
   ___ vegetable oil, PAM, etc
   ___ none
   ___ never eat refried beans

P-11. What type of fat or oil do you use most often in cooking?
   ___ lard
   ___ butter
   ___ shortening
   ___ margarine
   ___ vegetable oil
   ___ never use fat or oil in cooking
   ___ not sure
P-17. Number of Children

First name:

Phone number:
Post-test (Phone call) Compre Comida Saludable

Name ____________________________
Number __________________________
Date ____________________________ Time __________

P-1. Have you done any grocery shopping since the workshop or not?
   1 YES
   2 NO

P-2. If yes, did the workshop help you save money or not?
   1 YES
   2 NO
   3 DON"T KNOW

P-3. How?

P-4. As a result of attending the workshop have you used a grocery list when you shop?
   1 YES
   2 NO

P-5. As a result of the workshop have compared food prices when making purchases?
   1 YES
   2 NO

Which is more economical?
P-6. 1 low-fat milk OR
     0 Whole milk

P-7. 0 cereal in small boxes OR
     1 cereal in large boxes

P-8. 1 milk in gallon size OR
     0 milk in quart size

P-9. 0 chicken parts OR
     1 whole chicken

P-10. 0 prepackaged cheese OR
      1 blocks of cheese

P-11. 1 fruit grown locally OR
      0 fruit from far away
As a result of the workshop have you done or do you plan to do any of the following or not?

<table>
<thead>
<tr>
<th></th>
<th>Have done</th>
<th>Plan to do</th>
<th>Don't plan to</th>
<th>Already do</th>
</tr>
</thead>
<tbody>
<tr>
<td>P-12</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>P-13</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>P-14</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>P-15</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>P-16</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

P-17. What do you think about most when you shop for food?

1. COST
2. NUTRITION
3. WHAT YOUR FAMILY LIKES TO EAT?
4. OTHER?

P-18. Did the workshop help you plan more nutritious meals for your family or not?

1. YES
2. NO

P-19. As a result of the workshop have you made any changes in your child(ren)’s diets?

1. YES
2. NO

P-20. If yes, what have you changed?
P-21. Do you worry about what your child(ren) eat?
    1 YES
    2 NO

P-22. Do you think your child(ren) can get sick if they don’t eat the right foods?
    1 YES
    2 NO

Are you concerned about whether your child(ren) might......

    P-23. gain too much weight?
        1 YES
        2 NO
        3 NOT SURE

    If yes, Why?

    P-24. get diabetes?
        1 YES
        2 NO
        3 NOT SURE

    If yes, Why?

    P-25. get heart disease?
        1 YES
        2 NO
        3 NOT SURE

    If yes, Why?

P-26. Do you think that a healthy diet might reduce these problems?
    1 YES
    2 NO
P-27. You have ____ children.
What are their ages? ____, ____, ____, ____.
Did your ____ year old child eat from the ____ food group yesterday?

<table>
<thead>
<tr>
<th>Food Group</th>
<th>child 1</th>
<th>child 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bread, tortillas and grain</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fruit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vegetables</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Milk and milk products</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meat, beans and eggs</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Finally I'd like to ask you some questions about your family, this information will help Oregon State Extension plan additional programs for Spanish speaking families.

P-28. Which language do you speak at home?
1 Spanish
2 English
3 both
4 other

P-29. Which language do you prefer to speak?
1 Spanish
2 English
3 both

P-30. Which languages do you read?
1 Spanish
2 English
3 both

P-31. Where were you born?

If not the U.S. has your diet changed since moving to the U.S.?
1 YES
2 NO
If yes, How?
P-32. (Where were) your parents born?_________________

P-33. (Where were) your grandparents born?_________________

P-34. How many years of school have you attended?_____
   1 8- grade school
   2 12 -high school
   3 greater then 12

P-35. How old are you?_____
   1 Under 19
   2 19-25
   3 26-30
   4 31-35
   5 over 35

P-36. How long have you been in this WIC program? ____

P-37. Gender
   1 male
   2 female

THANK YOU VERY MUCH FOR YOUR HELP.
Appendix F

Responses to Pre-test and Post test Questionnaires
### PRE-TEST QUESTIONS AND FREQUENCIES (n=33)

<table>
<thead>
<tr>
<th>Question</th>
<th>Correct</th>
<th>Incorrect</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>P-1. Low-fat milk or Whole milk</td>
<td>Correct</td>
<td>26</td>
<td>79%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Incorrect</td>
<td>7</td>
<td>21%</td>
<td></td>
</tr>
<tr>
<td>P-2. Small cereal box or Large box of cereal</td>
<td>Incorrect</td>
<td>8</td>
<td>24%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Correct</td>
<td>25</td>
<td>76%</td>
<td></td>
</tr>
<tr>
<td>P-3. Gallon of milk or Quart of milk</td>
<td>Correct</td>
<td>30</td>
<td>91%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Incorrect</td>
<td>3</td>
<td>9%</td>
<td></td>
</tr>
<tr>
<td>P-4. Pre-cut chicken or Whole chicken</td>
<td>Incorrect</td>
<td>13</td>
<td>39%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Correct</td>
<td>20</td>
<td>61%</td>
<td></td>
</tr>
<tr>
<td>P-5. Pre-package cheese or Block cheese</td>
<td>Incorrect</td>
<td>6</td>
<td>18%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Correct</td>
<td>27</td>
<td>82%</td>
<td></td>
</tr>
<tr>
<td>P-6. Local fruit or Imported fruit</td>
<td>Correct</td>
<td>27</td>
<td>82%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Incorrect</td>
<td>6</td>
<td>18%</td>
<td></td>
</tr>
</tbody>
</table>

P-7. When your children eat chicken, how often do you remove the skin before cooking?

- 21% never
- 27 occasionally
- 30 usually
- 15 always
- 6 never eat chicken
- 0 not sure

P-8. What type of milk do your children usually use?

- 33% whole
- 6 chocolate
- 42 low fat
- 0 skim, nonfat, or powdered
- 18 never use milk
- 0 not sure
P-9. Which type of hamburger meat do your children usually eat?
   27% regular
   12 lean
   33 extra lean
   15 never eat hamburger
   12 not sure

P-10. When your child eats refried beans, what type of fat are they made with?
   12% lard
   3 bacon grease
   33 shortening
   39 vegetable oil, PAM, etc
   12 none
   12 never eat refried beans
   0 not sure

P-11. What type of fat or oil do you use most often in cooking?
   27% lard
   33 butter
   42 shortening/crisco
   18 margarine
   49 vegetable oil
   6 never use fat or oil in cooking
   0 not sure

P-12. Number of children average 2 (ranging from 1 to 6)
POST-TEST QUESTIONS AND FREQUENCIES
n=19 unless otherwise indicated

P-1. Have you done any grocery shopping since the workshop or not?
  100% YES
  0 NO

P-2. If yes, did the workshop help you save money or not?
  100% YES
  0 NO
  0 DON'T KNOW

P-3. How?
  42% Larger packages
  26 Gallons of milk
  32 Compare prices
  42 Buy chicken
  53 Look for sales
  32 Other

P-4. As a result of attending the workshop have you used a grocery list when you shop?
  58% YES
  32 NO
  11 Already did

P-5. As a result of the workshop have compared food prices when making purchases?
  90% YES
  11 NO

Which is more economical?

<table>
<thead>
<tr>
<th>Question</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low-fat milk or Whole milk</td>
<td>Correct 19</td>
<td>100%</td>
</tr>
<tr>
<td>Small box of cereal or</td>
<td>Incorrect 0</td>
<td>0</td>
</tr>
<tr>
<td>Large box of cereal</td>
<td>Correct 19</td>
<td>100%</td>
</tr>
<tr>
<td>Gallon of milk or Quart of milk</td>
<td>Correct 19</td>
<td>100%</td>
</tr>
<tr>
<td>Pre-cut chicken or Whole chicken</td>
<td>Incorrect 0</td>
<td>0</td>
</tr>
<tr>
<td>Prepackage cheese or Block cheese</td>
<td>Incorrect 0</td>
<td>0</td>
</tr>
<tr>
<td>Local fruit or Imported fruit</td>
<td>Correct 19</td>
<td>100%</td>
</tr>
</tbody>
</table>
As a result of the workshop have you done or do you plan to do any of the following or not?

<table>
<thead>
<tr>
<th>Have done</th>
<th>Plan to do</th>
<th>Don't plan to do</th>
<th>Already do</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>%</td>
<td>%</td>
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P-12. 58 11 5 21 Remove the skin from chicken that your child(ren) eat?

P-13. 37 11 21 21 Serve low fat or nonfat milk to your child(ren)?

P-14. 84 5 0 0 Remove the excess oil when cooking ground beef for your child(ren)?

P-15. 21 16 11 47 Change from lard to vegetable oil for refried beans?

P-16. 95 5 0 0 Reduce the amount of fat used in cooking?

P-17. What do you think about most when you shop for food?

11% COST
21 NUTRITION
21 WHAT YOUR FAMILY LIKES TO EAT?
21 ALL
11 PRICE & NUTRITION
5 PRICE & WHAT FAMILY LIKES
11 NUTRITION & WHAT FAMILY LIKES

P-18. Did the workshop help you plan more nutritious meals for your family or not?

100% YES
0 NO
P-19. As a result of the workshop have you made any changes in your child(ren)'s diets?

84% YES
16 NO

P-20. If yes, what have you changed? (n=16)

44% Used less fat in general
25 Taken skin off chicken
38 Added variety
38 Added jugos
25 Used less sugar
25 Increased vegetables
25 Switched to low-fat milk
11 Other

P-21. Do you worry about what your child(ren) eat?

90% YES
11 NO

P-22. Do you think your child(ren) can get sick if they don’t eat the right foods?

82% YES
5 NO
11 Don’t know

Are you concerned about whether your child(ren) might......

P-23. gain too much weight?

19% YES
16 NO
5 NOT SURE

If yes, Why?

Of those who worried about their children gaining too much weight; 60% mentioned diet or a high fat diet as a reason why they worried, 13% indicated it ran in their family, 20% mentioned non-diet related reasons for worrying, and 6% didn’t know why they worried.
P-24. get diabetes?
   68%    YES
   26    NO
   5    NOT SURE

If yes, Why?
   Of those who worried about their children getting diabetes; 31% indicated diet
   as a contributing factor to the disease, 23% specifically mentioned sugar
   consumption, 23% indicated it ran in the family, 15% mentioned non-diet related
   reasons, and 3% didn't know why they worried.

P-25. get heart disease?
   53%    YES
   47    NO
   0    NOT SURE

If yes, Why?
   Of those who worried about their children getting heart disease; 40% 
   mentioned eating fat or being over weight as a reason why the worried, 20% 
   indicated it ran in their family, 31% mentioned non-diet related reasons, and 9% 
   didn't know why they worried.

P-26. Do you think that a healthy diet might reduce these problems?
   100% YES
   0    NO

P-27. You have_____ children.
   What are their ages? ____, ____, ____, ____.
   Did your ____year old child eat from the ____ food group yesterday?

child 1

Bread, tortillas and grains  100% YES

Fruit  
   88    YES
   6    NO
   6    DON'T KNOW

Vegetables  
   53    YES
   41    NO
   6    DON'T KNOW

Milk and milk products  
   94    YES
   6    NO

Meat, beans and eggs  100    YES
Finally I’d like to ask you some questions about your family. This information will help Oregon State University Extension plan additional programs for Spanish speaking families.

P-28. Which language do you prefer to speak?
   90%    Spanish
   11    English
   0    both
   0    other

P-29. Which language do you speak at home?
   68%    Spanish
   26    English
   5    both

P-30. Which languages do you read?
   74%    Spanish
   11    English
   16    both

P-31. Where were you born?
   84%    Mexico
   16    United States

If not the U.S., has your diet changed since moving to the U.S.? (n=16)
   75%    YES
   19    NO
   6    Don’t Know

If yes, How?
   *US diet has more fat, she has gained a lot of weight since arriving
   *US diet more variety, and sugar. Less exercise here, has a car.
   *US diet less lard, more bread, fruit and vegetables.
   *US diet has low-fat milk and less fruit
   *US more available
   *US more food and more money to buy food
   *US food is easier to get, more money, and more fast food
   *US more fast food such as kentucky fried chicken and pizza
   *US more fast food and broccoli, Mexico more fresh meat and seafood
   *Mexico diet more vegetables and beans, has gained weight in US
   *Mexico diet more nutritious and got more exercise there
P-32. (Where were) your parents born?
   84%    Mexico
   16    United States

P-33. (Where were) your grandparents born?
   84%    Mexico
   11    United States
   0    Other
   5    Don’t know

P-34. How many years of school have you attended?
   42%    1-8 years
   58    9-12 years
   0    12-or greater years

P-35. How old are you?
   5%    Under 19
   47    19-25
   32    26-30
   11    31-35
   5    over 35

P-36. Length of time in this WIC program?
   11%    less then 1 year
   32    1-2 years
   47    2-4 years
   11    greater then 4 years

P-37. Gender
   0%    male
   100%  female
Appendix G

Ethnographic Description of a Supermarket Tour
Ethnographic Description of a Supermarket Tour

The Supermarket Tour took place at Roth's IGA Foodliner in Woodburn, Oregon on Monday, July 13th at four o'clock in the afternoon. There were two participants. Both had attended the "Compre Comida Saludable" workshop and during the phone post-test indicated an interest in attending a supermarket tour. Yolanda and Rosa are in their late 20's. Even though they may understand English, they are both more comfortable speaking Spanish. Yolanda has one child who joined us for the tour. Rosa has two children who were home with her family.

Roth's IGA Foodliner was the perfect place for a supermarket tour in Spanish. Spanish was being spoken throughout the store and the signs in the aisles were bilingual in both English and Spanish. There was a small area with chairs where we met and could talk before starting and the store's aisles were wide enough so that we could stop without blocking other customers.

We started the tour with a review of the five food groups. I had prepared a colored handout of the five food groups', we reviewed the names and characteristics of each group. I reminded them that our main goal was to have a balanced diet which should included a good variety of foods and moderation of high fat and sugar foods. We would also be looking for the best buys throughout the tour. I asked Rosa and Yolanda for their help in finding some items since they knew the store better than I did.
Because of the presence of the child it was natural that we reached for a shopping cart, and with the child sitting comfortably in the cart we were off.

I had arranged the tour so that our trip through the store would be directed by common sense shopping and not necessarily in the order of importance, which the slide/tape show had so carefully portrayed. As it turned out, breads were near one of the doors, and wanting to remind them of the importance of complex carbohydrates, I carefully lead them to that side of the store to start.

At the breads stop they were both still a bit uneasy, so I started talking, reminding them of the messages in the slide show. For example, bread may indeed be a choice they make and to be healthier they should look for those that are 100% whole wheat. Rosa asked, "Bueno how do I know if I'm buying 100% whole wheat?" as she picked up a nice "brown looking loaf" and said, "This is the one I usually buy". Like many of the "brown breads", it was not 100% whole wheat but instead had coloring added. This provided the perfect chance to show them where it would say "100% Whole Wheat" on the package. We all relaxed as they picked up different loaves to look for the "100%" of the label. Yolanda indicated that sometimes she just can't afford the whole wheat bread and buys the less expensive white bread. She was concerned about this in regards to the effect it may have on the health of her little girl. I explained that as with all things, a balance must be met, and when she can't afford it, perhaps it is best to buy the white bread and when possible add vegetables and fruits to her child's diet. I assured her that as long as she tries to provide a balance for her child, she would grow up strong and healthy.
The mood was set and "confianza" was established as we went on around the corner to the milk section.

In the milk section, we talked about the importance of milk and calcium for children’s bones. I asked each one which milk they used. Yolanda said she used 2% and Rosa said, "low-fat", indicating it was the one with the red cap. We examined cap color and the red cap was whole milk! We took the time to coordinate each type of milk with the cap color, and compared the price at the same time. During this, Yolanda asked about the raw milk which also had a red cap. I pointed out the dangers of raw milk for pregnant women, children, and the elderly. It’s unfortunate that the raw milk is sold side by side with pasteurized milk, especially if the population is buying their milk based on cap color.

The yogurt was next. I had almost forgot to stop at the yogurt but both Yolanda and Rosa had questions. They wanted to know what the difference was between low-fat and non-fat yogurt. During the explanation, a Mexican-American man was buying yogurt and asked us which was best and decided to try the nonfat, and thanked us for the information. Rosa also decided to try the non-fat yogurt. At this point I realized that we were quite comfortable, and others in the store were trying to listen in as we went along.

At the cheese section, Rosa indicated that she had bought Mozzarella since attending the workshop and her family liked it. It happened to be on sale while we were on the tour and she bought it again. At this point we talked about comparing the price per ounce as a way to decide which is the best buy. They also wanted to
know "how to tell" which was the lower fat cheese. I indicated that this was harder information to get off the label. We looked at mozzarella which has 5 grams of fat per ounce, cheddar at about 9 gm per oz., and monterey jack (a cheese commonly used by Mexican-Americans) which also has about 9 grams/oz. Then we looked at some of the new reduced fat cheddar cheeses, and all of us agreed that they would be healthier choices at about 6 gram/oz. But, Yolanda pointed out that price may be a factor and we agreed that they would need to watch for sales.

The luncheon meats and prepackaged hams were located next to the cheese section. On the way by, both of the women stopped and Rosa said that for lunch she buys ham when she's short of time and wanted to know which had less fat. I thought to myself "oh boy this is a hard question since many packages don't have the information on the label" but I realized that at least the message of reducing the fat had gotten through loud and clear. I decided to show them that the labels on foods don't always have the information we want, and when you're eating things that might be high in fat, just to remember moderation. I also took the chance to tell them that we need some fat in our diets. It's just too much fat that's bad.

We moved on to the breakfast cereals. Here I asked them which ones they thought had a lot of sugar. Then I asked them if they would like to know how to tell which cereals had less sugar. After asking me how to figure out the amount of fat in cheese and ham and not getting much information, they seemed thrilled that I could actually show them how to determine which cereal was high in sugar. Cereal manufacturers have helped us by putting the amounts of total carbohydrates and
simple sugars in the same place on most boxes. So after I explained what to look for, they were checking all the boxes, and having a lot of fun. People in the store were really quite interested in what we were doing although no one actually asked. Yolanda was pleased because she buys Rice Chex and it had 25 grams of total carbohydrates and only 2 grams of simple carbohydrates. Rosa was not as happy, because she had trouble getting her kids to eat corn flakes and said they liked the ones with pictures on them. She did find a "Batman Returns" cereal with 15 grams of total carbohydrates and 11 grams of simple carbohydrates (sucrose), which was also on sale. So we talked about moderation, and she said that maybe she can keep checking labels and find one with less sugar next time.

Next we stopped at the oil/fats section, to see what type of oils/fats they used. Rosa's family had just killed a pig so she said she was using the lard from that, but also indicated that she was trying to use less when cooking. She said that when it is gone she is going to start buying vegetable oil. Yolanda wanted to know which was the very best oil. I told them that the polyunsaturated vegetable oils, and monounsaturated oils such as canola and olive oils were better than the saturated lard or more solid shortenings. I emphasized that moderation of fats and oils in all cooking is the goal.

On our way to the meat section, we went by the salt and both women stopped and turned to me and asked, "Which salt is the best?" I thought, "SALT? Well salt's, salt right?" Rosa said she was told not to buy the one with the little girl on it and wanted to know if this was true. I knew the little girl was "Morton salt" so I
picked it up for a closer label-reading look. That was when it hit me that it was iodized versus non-iodized that they were talking about. It took me awhile to remember the name in Spanish, which is "yodo", but then I explained it's the iodized salt you want to buy unless a doctor tells you not to. Morton makes both iodized and non-iodized containers which look very similar and both have little girls with umbrellas on them. We found where the label says "iodized" and both the women immediately wanted to buy some. Then Yolanda asked, if the store brand was all right to use because it would be cheaper. We looked for "iodine" on the label, they compared the price and they choose the store label brand.

After this they wanted to know the best sugars I thought "Oh no, which is the best sugar?" but they meant between white or brown sugar. I indicated that nutritionally white and brown sugar are basically the same, and that their choice may depend on what they were making with it.

Finally we walked to the meat section. Here I asked what foods they eat from this group, and in their list they did mention rice and beans. Yolanda had eaten rice and beans without any meat since the workshop. She said she had done this before when they didn't have the money to buy meat, but that since going to the workshop she doesn't feel bad about doing it because she know it's still healthy. Rosa said that they usually eat some meat with their beans everyday. Both women buy hamburger. Yolanda buys the regular and indicated that she has tried to remove more fat after cooking it now. Rosa said she was buying extra lean, but was thinking that she might save money by switching to regular and then she could spend
some of the money she saved to buy more fruits and vegetables. We had the chance
to look at chicken burger, which was only $0.99/lb and the chicken beef mixture was
priced at $0.89/lb. The meat manager indicated that these were no more than 22% fat which is the same percent fat as the lean hamburger for $1.79/lb. Both Rosa and Yolanda seemed as if they might want to try the chicken or chicken and beef mixture. They asked a women who was buying it if it was good. She indicated in Spanish that her family liked it, and that it was less expensive. We looked at the chicken prices and whole chickens were only $0.69/lb compared to $0.98/lb for precut chicken. Rosa bought one as we were shopping. We looked at the fish counter and talked about adding fish to their diet. Yolanda says that she buys fish once in-awhile, but likes it better when her husband catches it. Rosa indicated that she didn’t buy fish. Both women had questions on which eggs were best (brown or white) and also the difference between grade AA, Large, Medium, and Jumbo. Here we talked mostly about the price difference, and that sometimes the larger eggs are on sale. I indicated that brown and white eggs were basically the same.

We followed up the meat section with a quick stop in the Mexican Food section. Yolanda does not buy canned beans, and indicated that she doesn’t because they are too expensive. Rosa said she buys them when she’s in a hurry. When asked which ones she buys she said the vegetarian ones, but picked up the ones labeled "low-fat" made with lard. She said she couldn’t believe that she hadn’t looked at the label more carefully and was quite happy to figure out which ones were made without lard.
Our final stop was in the fruit and vegetable section. Here I decided just to ask which ones are their favorites and how they eat them. Rosa indicated that she likes broccoli, cabbage, carrots and green peppers. She bought some cabbage. Yolanda said she likes all of those as well as beets and spinach. This seemed to surprise Rosa and she asked Yolanda how she cooks them. After exchanging recipes, Rosa decided to try the beets, and bought some. Both said they always buy the fruit that's on sale. Once again they both had a question on whether grapefruit can help you to lose weight. I responded by sharing that in order to lose weight, you have to reduce your calories and increase your exercise. One way to reduce calories is to reduce the amount of fat you eat and replace it with fruit, vegetable, or foods from the bread group. These can make you feel full without adding so many calories to your diet. I also took this as a final opportunity to review the main points of the program, which were that a healthy diet contains balance (not skipping any one food group); variety (eating different foods within each group); and moderation (having a small amount of foods high in fat or sugar).

At the end of the tour we all felt much more comfortable and it felt like we had been friends for much longer then 35 minutes. I gave them each a pineapple in appreciation for coming and we all thanked each other. I think all of us were surprised at what a nice time it had been. Rosa and Yolanda went to the checkout stand together, still exchanging recipes.