THE EFFECT OF A NUTRITION EDUCATION MODULE SPECIFICALLY FOR THE ELDERLY: AN EXPERIMENTAL STUDY

A DISSERTATION

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DEDICATION

THIS DISSERTATION IS DEDICATED TO MY PARENTS ELIE AND HELEN ROSS AND TO MY HUSBAND DARRYL D. THOMAS WHO SUPPORTED AND ENCOURAGED ME.

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Background of Nutrition Education for the Elderly

Improper nutrition affects the elderly by contributing to chronic and acute diseases, and by hastening the development of degenerative diseases associated with aging. Many of these diseases, hypertension, diabetes, obesity, arteriosclerosis, and heart disease, are thought to be rooted in malnutrition. Other general disorders resulting from malnutrition are: nutrient deficiencies, nutrient imbalances, and undernutrition. It is important to recognize malnutrition as one of the most serious problems of the elderly in order to correct this deficiency (Posner, 1979).

Because of malnutrition and improper nutrition associated with the elderly, the federal government established the Nutrition Program for the Elderly. Funds distributed under this program enabled communities to provide one nutritious meal a day, for five days a week to those sixty or older (To Find the Way: Opportunities and Services for Older Americans, 1975). This program was made possible through the enactment of The Older American Act of 1965 which includes seven titles.

Under Title VII, The Nutrition Program for the Elderly was established. Congress decided to add Title VII, after research conducted under Title IV (Research on Aging) of the Older Americans Act demonstrated the need for a

nationwide project to aid in meeting the nutritional needs of the elderly. The research concluded that many elderly persons do not eat adequately because:

1. they cannot afford to do so.

2. they lack the skills necessary to select and prepare well-balanced meals.

3. limited mobility may impair their capacity to shop and cook for themselves.

4. feelings of rejection and loneliness decrease the incentive to prepare meals and eat alone. (Nutrition Service Guide, 1981, p. 151).

As a result of these findings, allotments were authorized to the 50 states, District of Columbia, Puerto Rico, Guam, American Samoa, the Virgin Islands, and the Trust Territory of the Pacific Islands, to establish nutrition projects under the Nutrition Program for the Elderly. Each project was to follow federal requirements and provide:

a. meals in a congregate setting.

b. one hot meal five days a week.

c. meals which contain at least one-third of the current daily recommended dietary allowances.

d. home delivered meals where necessary.

e. supportive services including nutrition education and shopping assistance. (Nutrition Service Guide, 1981, p. 151).

On the basis of these guidelines, the program was implemented to meet the nutritional and social need of the elderly (Nutrition Service Guide, 1981). These

federal requirements established a framework for the nutrition program and introduced nutrition education.

Requirements for Nutrition Education for the Elderly

Nutrition education for the elderly is necessary to increase the realization of the relationship between food and health. Also, to encourage proper means to buy and prepare economically nutritious meals. The requirements of the Nutrition Program for the Elderly as mandated in the Nutrition Service Providers Guide to Program Management (1981) states:

> Nutrition education means a formal program of regularly scheduled meetings to make available facts about the kinds and amounts of foods that are required to meet one's daily nutritional needs. It shall be an accompanying feature of the meal program, with close coordination between the two components to improve the nutritional intake of older persons through better eating habits by making them aware of the relative nutritional value of different food groups (Nutrition Service Guide, 1981, p. 153).

Nutrition education is to be scheduled at a regular time and should include different teaching methods. It has been suggested that participants be actively involved in the program. Participants can help conduct the program, prepare foods, plan menus, and take trips to food stores (Nutrition Service Guide, 1981).

Shopping assistance is to be included for participants when taking trips to the food stores according to The Nutrition Service Provider's Guide to Program Management. The shopping assistance requirements mandated by the guide are as follows:

> Shopping assistance means making help available to project participants in getting to-and-from food markets and in the selection of proper food items so as to improve their nutritional intake (Nutrition Service Guide, 1981, p. 155).

Shopping assistance is therefore considered an integral part of nutrition education (Nutrition Service Guide, 1981).

Nutrition education, inclusive of shopping assistance, has been developed and is required through the Nutrition Program for the Elderly. Many elderly individuals have little or no interest in the shopping, preparation, or eating of food. It has been suggested that the Nutrition Program for the Elderly, with emphasis on nutrition education, can help rejuvenate such interest (Nutrition Service Guide, 1981).

Rationale for the Study

As the number of elderly increase, more attention is being given to factors associated with aging. One major concern is the health of the elderly. Schlenker, Feurig, Stone, Ohlson and Mickelsen (1973) have suggested that both controllable and uncontrollable factors determine the health of the elderly.

Heredity is an example of an uncontrollable factor whereas food habits are within the individual's personal control. "Food habits are important components of life, having far-reaching effects on health and rate of aging" (Schlenker, et al, 1973, p. 1111).

From the previous completed work in this area, it appears that there is a direct relationship between food habits, nutrition education and the need for additional nutrition information. To improve the food habits of the elderly, nutrition education programs are needed with active involvement of the participants. Therefore, the Nutrition Program for the Elderly has become a priority (Nutrition Service Guide, 1981).

One nutrition project established under the Nutrition Program for the Elderly is the Dallas County Nutrition Program. One of the major goals of the Dallas County Nutrition Program is to provide five nutritious meals a week. An additional goal is to improve the capability of the elderly to prepare meals at home.

To attain this goal, more is needed than the preparation of nutritionally sound meals. The participants must be motivated to eat properly at all daily meals. "This means knowing what additional foods, other than those served by the program, are needed for a balanced diet. Participants must understand why they need to eat and how they may obtain the food they need; most importantly, they must be motivated to change poor eating habits" (Nutrition Service Guide, 1981, p. 153). Perhaps such motivation can be attained through exposure to nutritional facts, meal planning and preparation experience.

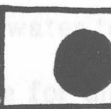
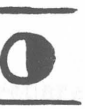
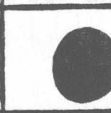
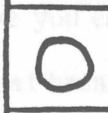
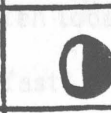
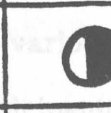
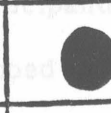
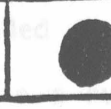
It is generally thought that nutritional facts, meal planning and preparation experience are necessary to make proper food choices. Without proper food choices health problems may develop. There is evidence from the Ten State Nutrition Survey that (1) nutritional deficiences exist because of inadequate diets, which are the result of improper food choices, and (2) that nutritional deficiences are significant among the elderly (Highlights from the Survey, 1972). The Ten State Nutrition Survey included low income-ratio states, such as: Kentucky, Louisiana, South Carolina, Texas, and West Virginia. High income-ratio states included California, Massachusetts, Michigan, New York, and Washington. (The low income-ratio states are considered in this rationale because of the inclusion of Texas.) The cities emphasized in Texas were: Dallas, Houston, and San Antonio (Ten State Survey, 1968-1970, 1972) (See Table 1). The results of the survey showed that a significant percentage of those surveyed were malnourished. Nutritional deficiencies of the elderly were prevalent and those surveyed showed evidence of general malnutrition which was not restricted to any single ethnic group (Highlights from the Survey, 1972).

Such nutritional deficiencies may have resulted from poor food choices that led to inadequate diets. Therefore, it is imperative that nutrition education for the elderly focus on nutritional facts, meal planning and preparatrion experience, all of which would enhance healthy food choices. It follows that the participants of The Dallas County Nutrition Program should receive such attention because Dallas was included in the Ten-State Nutrition Survey and because of their lack of knowledge regarding nutritional facts, meal planning and preparation experience.

Table 1

Nutritional Problems of Those 60 Years and Older,
Ten State Nutrition Survey 1968-1970

Low Income Ratio States
(Kentucky, Louisiana, South Carolina, Texas, West Virginia)

Ethnic Group	Sex	Iron	Protein	Vitamin A	Vitamin C	Thiamine	Iodine
Black	Females						
	Males						
White	Females						
	Males						
Spanish-American	Females						
	Males						

Note: From "Highlights from the Ten-State Nutrition Survey", Nutrition Today, July/August, 1972, 6-7.

Figures in the table represent the following legend.

 - High Deficiencies  - Low Deficiencies

 - Medium Deficiencies  - Minimal Deficiencies

The lack of knowledge of some of the participants in the Dallas County Nutrition Program was determined during a pilot study conducted by the investigator during the summer of 1981. As part of this study, over 55 participants of The Dallas County Nutrition Program were interviewed and asked the following questions:

1. What did you think of the nutritious meal served yesterday?
2. Did you have any water today?
3. What did you have for dinner yesterday? (Good, how did you prepare it?)
4. What have you eaten today?
5. Did you eat breakfast?
6. How do you cook (various items)?

Approximately ten participants were also observed and interviewed in the grocery store as they shopped for the week. From these two sources of information, it was concluded that the participants were lacking in basic knowledge needed to prepare a nutritious meal. It was also apparent that additional nutritional knowledge and motivational techniques are needed to impact on nutritional practices in daily living. This study is designed to include nutrition education with a focus on nutritional facts and meal planning and preparation experience.

It is designed to also increase the realization of the relationship between food and health and to contribute to both health education and gerontology. The study will expose participants to experiences that may positively influence

health attitudes and behavior and will introduce participants to living skills that can help decrease disease, increase independence and help maintain their dignity and self-esteem.

Purpose of the Study

The general purposes of this study were to: (1) determine the effectiveness of a nutrition teaching module designed specifically for the elderly and (2) to determine if nutrition education would improve the capability of the elderly to plan and prepare nutritious meals.

Statement of the Problem

This study was designed to test whether a nutrition teaching module for the elderly would lead to increased knowledge about nutrition. The study was also designed to test if the module, inclusive of individualized sessions, would enhance ability of the elderly to plan and prepare nutritious meals. Seven sub-problems were examined.

The Sub-problems

1. The first sub-problem. The first sub-problem was to determine the nutrition knowledge of the elderly participants.

2. The second sub-problem. The second sub-problem was to determine the meal planning skills of the elderly participants.

3. The third sub-problem. The third sub-problem was to determine the meal preparation practices of the elderly participants.

4. The fourth sub-problem. The fourth sub-problem was to determine if nutrition knowledge had an effect on meal planning skills.

5. The fifth sub-problem. The fifth sub-problem was to analyze the relationship between the participants nutrition knowledge and meal planning skills.

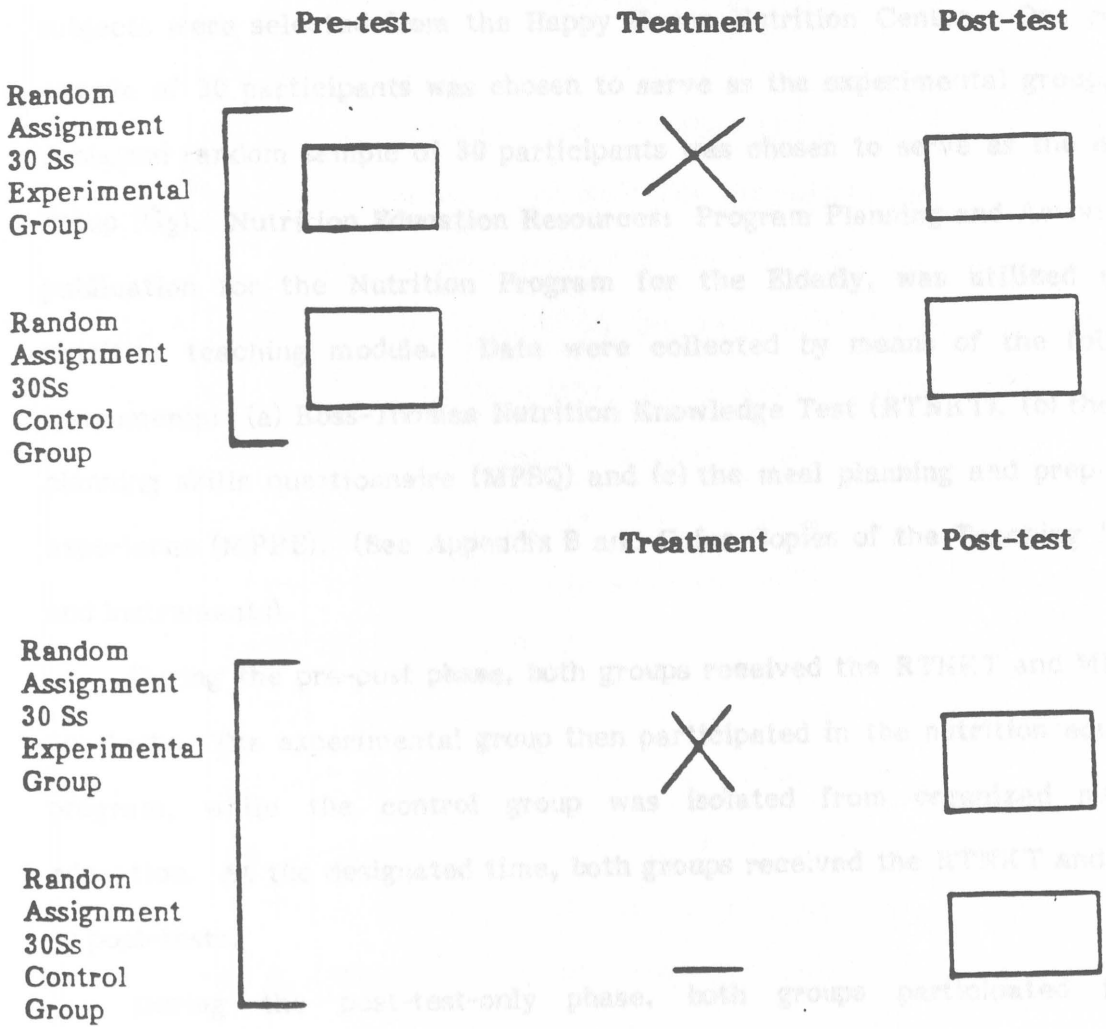
6. The sixth sub-problem. The sixth sub-problem was to determine if nutrition knowledge had an effect on meal preparation practices.

7. The seventh sub-problem. The seventh sub-problem was to analyze the relationship between the participants nutrition knowledge and meal preparation practices.

This study was designed to include a pre-post and a post-only phase. The general design for the study is presented on the next page.

General Design of the Study

The basic research designs were as follows:



The study was conducted in Dallas, Texas during February, 1983. The pre-post and post-test-only experimental designs were utilized. To conduct this study, subjects were selected from the Happy Haven Nutrition Center. One random sample of 30 participants was chosen to serve as the experimental group, (G_1). A second random sample of 30 participants was chosen to serve as the control group (G_2). Nutrition Education Resources: Program Planning and Activities, a publication for the Nutrition Program for the Elderly, was utilized as the nutrition teaching module. Data were collected by means of the following instruments: (a) Ross-Thomas Nutrition Knowledge Test (RTNKT), (b) the meal planning skills questionnaire (MPSQ) and (c) the meal planning and preparation experience (MPPE). (See Appendix B and C for Copies of the Teaching Module and Instruments).

During the pre-post phase, both groups received the RTNKT and MPSQ as pre-tests. The experimental group then participated in the nutrition education program, while the control group was isolated from organized nutrition education. At the designated time, both groups received the RTNKT and MPSQ as post-tests.

During the post-test-only phase, both groups participated in the administration of the MPPE. The MPPE took place at the designated time after the treatment period.

From the data collected, the investigator was able to determine if nutrition education led to increased knowledge about nutrition. Further, the

data was analyzed to determine the relationship between nutrition education and the ability of the elderly to plan and prepare nutritious meals.

Hypotheses for the Study

The following hypotheses were tested at (the .05) level of significance.

1. The participants exposed to the nutrition teaching module will have higher post-test scores on the RTNKT than the control group.

2. The participants exposed to the nutrition teaching module will have higher post-test scores on the MPSQ than the control group.

3. The participants exposed to the nutrition teaching module will have higher scores on the MPPE than the control group.

4. There will be a positive relationship (at least .50), between nutrition knowledge and meal planning skills as determined by the post-test data collected from the RTNKT and the MPSQ for G_1.

5. The correlation of nutrition knowledge and meal planning skills established over the pre-test and post-test period will be higher (at least .40) for G_1 than G_2 as determined by the data collected from the RTNKT and the MPSQ.

6. There will be a positive relationship (at least .50), between nutrition knowledge and the meal planning preparation experience as determined by the post-test data collected from the RTNKT and the MPPE for G_1.

7. The correlation of nutrition knowledge and the meal planning preparation experience established during the post-test period will be higher (at least .40) for G_1 than G_2 as determined by the data collected from the RTNKT and the MPPE.

Assumptions for the Study

The assumptions for the study were as follows:

1. It was assumed that previous exposure to nutrition education was similar for each participant in each of the two groups.

2. It was assumed that the independent variable, nutrition education, accounted for any change that might be observed in nutrition knowledge, meal planning, and meal preparation practices.

3. It was assumed that the influence of other factors was evenly distributed among the participants.

4. It was assumed that the influence of the investigator was the same for each participant in each of the two groups.

5. It was assumed that the participants in both groups exhibited similar enthusiasm in taking the instruments.

Limitations of the Study

The study was subject to the following limitations:

1. The extent to which the participants were representative of the Dallas County Nutrition Program population.

2. The level of attendance during the time the research was conducted.

3. The extent to which the subjects were willing to participate and provide energy in the study.

Delimitations of the Study

The following delimitations were established for the study:

1. The study was limited to the 60 participants selected from Happy Haven Nutrition Center.

2. The study was concerned only with the impact of current nutrition education.

3. Socio-economic status and other demographic data were considered irrelevant for the purposes of this study.

Definition of Terms

1. Congregate Setting - group meals (Nutrition Service Guide, 1981).

2. Elderly - persons aged 60 and over (Nutrition Service Guide, 1981).

3. Malnutrition - a disturbance of form or function based on a lack or an excess of calories or of one or more nutrients (United Kingdom, Department of Health and Social Security, 1970, in Rao, 1973).

4. Meal Planning - the general plan of amounts and kinds of foods required to conform to the legal requirements of Title VII of the Older Americans Act (Nutrition Service Guide, 1981).

5. Meal Preparation - proper techniques, to prepare meals, which enhance the nutritive value of food (Nutrition Service Guide, 1981).

6. Nutrition Education - a formal program of regularly scheduled meetings to make available facts about the kinds and amounts of foods that are required to meet one's daily nutritional needs. It shall be an accompanying feature of the meal program, with close coordination between the two components to improve the nutritional intake of older persons through better eating habits by making them aware of the relative nutritional value of different food groups (Nutrition Service Guide, 1981).

7. Nutrition Education Resources: Program Planning Activities - a publication for the Nutrition Program for the Elderly. Publication is inclusive of guidelines to implement program, program plans and activities (School of Home Economics, Oregon State University, 1975).

8. Nutritious Meal - one which contains at least one-third of the current daily recommended dietary allowances as established by the Food and Nutrition Board (Nutrition Service Guide, 1981).

9. Older American Act - a bill passed by Congress in 1965 which is inclusive of seven titles. These titles provide a variety of programs and services for the elderly and projects for researchers and educators; all in an effort to enhance the life of the elderly (Nutrition Service Guide, 1981).

10. Shopping Assistance - making help available to program participants in getting to-and-from food markets and in the selection of proper food items while in the store, so as to improve their nutritional intake (Nutrition Service Guide, 1981).

Chapter II - Review of Literature

Introduction

The 1971 White House Conference on Aging brought national attention to the nutritional problems of the elderly. Recommendations from the conference centered around the need for: nutrition education, supportive services, shopping assistance and additional research. Thus, grants were issued and additional nutritional studies and surveys were carried out in many parts of the country.

These studies provided essential information on nutrient deficiencies, food habits, meal planning practices, meal preparation practices and attitudes of the elderly. Past studies have also suggested: (1) a relationship between nutrition education and food habits and; (2) the need for additional nutrition education. A review of these studies indicates that the present study is an extension of these earlier studies and is not a duplication.

For purposes of clarification, the review of literature is divided into two sections: (1) Food Choices of the Elderly and (2) Nutrition Education Programs for the Elderly.

Food Choices of the Elderly

The quality of life of the elderly depends greatly upon what they choose to eat (Rao, 1973). Brown (1976) has stated, "the food that people choose to eat, the reasons for their choices, and their eating patterns are termed food choices" (p. 89). Proper food choices are a major contributor to health. Improper food choices may contribute to the development and progression of disease and

disorders associated with aging (Young, 1983). These food choices may be based on many factors, including culture, income, religion, education and socialization.

Food habits of older workers were studied in 1954 of 1,640 employed individuals 64 years of age. The researchers conducting the study distributed 24-hour recall forms throughout the United States. After an evaluation of food records, the investigators concluded that, 22% of the workers used no milk at all, while over 99% used bread and 75% used potatoes daily. Over 90% used coffee at least once a day, and more than 99% ate three or more times a day. The investigators concluded that the workers needed motivation and education in order to develop proper food habits (Young, Streile, and Greer, 1954).

Lyons and Trulson (1956) studied the food practices of 100 individuals 65 years of age and older in Boston. This study was accomplished through personal interviews conducted in the homes of 42 individuals. The other 58 participants were contacted by means of a mail-out. The responses from the personal interviews were significantly greater than those through the mail. The researchers found that one-fourth of the participants consumed less than 75% of the RDA for total calories, riboflavin, iron and ascorbic acid. Forty-eight (48%) percent of the men and 57% of the women were overweight. The researchers recommended a need for increased attention on the nutritional needs of the elderly.

A similar study was undertaken by LeBovit (1965) in Rochester, New York. LeBovit studied the food choices of 283 individuals who maintained their own households and ate most meals at home. The average age of the participants was

seventy-four for men and seventy-one for women. Data were collected by personal interviews. The researcher found that there was a shortage of important nutrients for a considerable number of the households. Over one-third were found to be making poor food choices on a regular basis. LeBovit recommended:

(a) nutritionists and health educators help elderly individuals make more judicious selections of foods;

(b) help those overweight reduce caloric intake; and

(c) teach the elderly concerning food fads (p. 289).

Jalso and associates (1965) studied the nutritional opinions and food practices of 340 individuals (inclusive of elderly). Data obtained through interviews and questionnaires were analyzed by means of a correlation coefficient and a t-test. The results showed that "the direct relationship between education and nutritional opinions and food practices reflected the influence of age rather than education" (Jalso, Burns and Rivers, 1965, p. 268). The researchers recommended presentations of valid nutritional information especially to aide the elderly in food practices.

"However, the implementation of nutrition education for the elderly is expected to be difficult; this is largely due to the assumption that the elderly are set in their ways, and will not try new foods" (Bilderbeck, Holdsworth, Purves, and Davies, 1981, p. 448). These researchers decided, it was necessary to investigate if the elderly would change eating habits before evaluating nutrition education for the elderly. In 1971, they conducted a study to assess

alterations in food habits of 100 elderly subjects. The McNemar Test for the significance of change was used as the interview instrument for each subject. Questions were formulated to assess current food habits, changes in food habits and reasons for the change.

Results from this study revealed that every subject had made some change. There were changes in the type of bread consumed, type of cereal, type of milk and butter. There was generally an increase in fiber and a decrease in cholesterol-rich foods. The reasons for change were health, price, convenience, and most important, taste. One important finding was that the use of a product would change when the elderly were informed that the change could improve health. The researchers concluded that the elderly are willing to change food habits when they are informed of the benefits. They suggested the implementation of nutrition education to help the elderly with needed alterations in food habits (Bilderbeck, et al., 1981).

Pelcovits (1972) observed in her study of the food habits for the elderly that many will not prepare proper meals just for themselves and thus they acquire poor eating habits. This study included a group of elderly in a meal program in which the 24-hour dietary recall method was used to determine food habits. Results showed that meals eaten away from the meal program were not inclusive of the four basic food groups. Of all the participants, 34% did not eat any fruit, 18% did not eat any vegetables and 20% did not consume any milk or milk products. Pelcovits concluded that the meals served at the meal program were "lessons in nutrition" but reinforcement was needed for carry over effect.

Reinforcement was shown to relate to the involvement of the elderly participants in the actual planning and preparation of meals.

The ability to plan and prepare meals adequate enough to maintain nutritional health appears to be a major factor in enabling the elderly to live independently. In 1973, Todhunter (cited in Winick, 1976) interviewed 529 non-institutionalized persons 60 years and older to identify factors that influence food habits. The researcher was interested in the need for group-feeding programs. His data was obtained through personal interviews and the 24-hour dietary recall method. Todhunter found that most of the participants had nutrient intakes that were less than two-thirds (2/3) the 1974 Recommended Diet Allowances. Also, economic factors strongly influenced food choices, meal patterns, and food beliefs. The investigator further concluded that group feeding programs for the elderly are needed to influence food habits. He recommended that programs provide: (1) meals inclusive of one-third (1/3) of the daily nutrient needs, (2) utilization of food appropriate to the food beliefs of the participants, and (3) nutrition education with guidance in planning and preparation of meals.

Rountree and Tinklin (1975) were also interested in studying the food habits of the elderly. They interviewed 104 senior citizens to study the relationship between their food beliefs and food practices. These investigators collected data using an interview schedule containing questions on food and nutritional beliefs, food fads, food purchasing, food preparation and consumption. Chi-square tests were used to analyze the data. The analyses of the data revealed that nutrition knowledge was generally low with 75% of the respondents

answering only 35% of the questions correctly. Also, participants did not always practice what they believed and food faddism was detected as a significant problem. One factor that greatly affected the food practices of the participants was their belief regarding flavor for foods. This study revealed the need for additional nutrition knowledge and motivation in applying the knowledge.

Brown (1976) conducted a similar study concerning factors that influence food choices and intake of the elderly. She interviewed 303 non-institutionalized persons over 65 years of age to find out what they eat and why. In addition to being asked what they ate and the reasons for eating, subjects were carefully questioned for information concerning eating patterns and nutritional knowledge. The participants represented a homogeneous sample of upper lower-class to middle-class elderly people. Their intake of the nutrients was determined to be adequate. There was no significant relationship between adequate diet and age, religion, education, income, or culture. Again, most of the participants chose foods for taste. It was found that 44% ate at least one meal per day alone and 63% ate at least one meal per day away from home. Regardless of income and education there was evidence of lack of nutrition knowledge. Brown concluded that an intervention program that provides nutrition education is necessary.

It was observed by Grotkowski and Sims (1978) that a positive relationship exists among food habits, attitudes and nutritional knowledge. Their study was designed to assess the relationship between attitudes, nutritional knowledge, and food habits of 64 non-institutionalized persons over 62 years of age. Each participant completed attitude and knowledge questionnaires, 3-day food

records, and a nutritional knowledge test. The Pearson Product Moment was utilized to correlate the data. Results of correlations showed a positive relationship between socio-economic status and food purchases. The researchers concluded that:

> "Other significant relationships were that the percentage of kilo-calories consumed as snacks was positively correlated with self-evaluation of nutrition knowledge and the attitude that nutrition is important, but inversely related to the beliefs that supplements are necessary, that supplements should be used as medicine, and to misconceptions about weight reducing diets" (Grotkowski and Sims, 1978, p. 501).

Because of the association between attitudes, food habits and nutritional knowledge, the implication for nutrition education programs that attempt to shape attitudes and improve nutritional knowledge and food habits is apparent (Grotkowski and Sims, 1978).

Other researchers have supported the importance of shaping attitudes and improving nutritional knowledge. The significance of food choices can not be over-estimated as shown by Ford and Sorenson (1981). These researchers conducted a workshop to deliver information on the relationship of food choices and health among senior citizens. Participants were encouraged to examine their current eating patterns. After this examination, participants were

interested in setting dietary goals and 70% altered their eating patterns to meet their personal objectives. The participants also desired other sessions for continued reinforcement and support.

Recent studies (Pelcovits, 1972; Todhunter, 1974, Rountree and Tinklin, 1975; Brown 1976; Grotkowski and Sims, 1978; Ford and Sorenson, 1981; Bilderleck, et al. 1981) have concluded that effective programs to help the elderly meet nutritional needs should be implemented. The researchers also suggest that these nutrition programs include nutrition education. Several of the researchers have suggested that income was a major factor affecting nutritional status. However, it was generally concluded that flavor or taste was most relevant. If the food is not tasty, many will not eat and the nutritional adequacy is not maintained. Hence, the possibility of malnutrition and increased health problems.

To alleviate such possibilities, it is necessary to improve the taste of food in an effort to enhance food choices and consumption of needed nutrients. One opportunity to enhance food choices and consumption of needed nutrients is through social nutrition. Because social contact is significant throughout the life cycle, it has been suggested that social nutrition be used to encourage food choices (Hanson, 1978). Another opportunity to enhance food choices is through nutrition education programs with involvement of the participants along with the use of different teaching methods (Holmes, 1972).

Nutrition Education Programs for the Elderly

In the recommendations to improve the food choices of the elderly, nutrition education is strongly emphasized by both The White House Conference on Aging and The American Dietetic Association. It was suggested that the educational program involve social contact, different teaching methods, individual counseling and be a part of their existing food program (Campbell, Schriver and Sooja, 1981).

Howell and Loeb (1969) conducted a study with non-institutionalized elderly to analyze the effect of different teaching methods. The topics discussed during their sessions were all related to nutrition education. Traditional didactic methods were found to be generally ineffective. Howell and Loeb recommended eight principles be used to achieve effectiveness:

1. practice - performance of the act one or more times;
2. advise learning - actual work on a shopping project;
3. spaced practice - allow time to consolidate new knowledge and experience, and time to relate it to what they already know;
4. knowledge of results - people learn better when they are aware of expectations and progress;
5. success experience - success during the practice session; approval from teacher and peers help the subject to remember the preparation practices;
6. reward - needs to be specific for aged groups;
7. overlearning - after the task is learned, allow subjects opportunities to practice so behavior becomes fixed; and

8. replacement of inappropriate responses to cues with appropriate responses - stimulus "I am hungry" associated with fruit instead of a sweet roll. Allow individuals time to become familiar with alternatives (p. 70).

The researchers suggested the incorporation of these eight principles for effective nutrition education for the elderly.

In a similar study, Holmes (1972) taught nutritional information to non-institutionalized elderly for six months. He used the traditional lecture method but found meager results after the six months. Many lectures were not attended and those given during meals were ignored. The researcher found increased results when group discussions and pre-post tests were utilized. Food habits and appetites improved and many participants were able to plan their own meals.

Some attention has also been given to the minority elderly in nutrition programs. Based on the continuity/discontinuity theory in social gerontology, a study was conducted that involved 150 minority elderly (Black, Chinese, and Mexican Americans) in three nutrition programs. The researcher was concerned with the level of participation in the nutrition program dependent on food patterns, health status, social interaction and program activities. Through interviews it was discovered that no significant differences were found among ethnic groups with regard to their levels of participation. The Mexican Americans did support the discontinuity theory however, because they were not active in organized activities in their younger days. For the most part, the minority elderly participated to socialize. Levels of participation increased when food, activities and socialization related to their experiences. The

researcher concluded that, for nutrition programs to benefit minority elderly, program implementers should consider their patterns of continuity/discontinuity and the ethnic preferences with special attention to the foods that most satisfy the minority elderly. (Chen, 1980).

Campbell, et al, (1981) supports nutrition education for the elderly. These researchers concerned themselves with improving the diets of nursing home residents. The sixty institutionalized participants were Caucasian, who were judged as being physically mobile and mentally alert. This study was concerned with an evaluation of the educational program in regards to dietary intake. The educational program with an emphasis on eating habits and nutritional knowledge lasted four weeks. The study concluded no significant changes in intake of nutrients for the control group. For the experimental group, the dietary intake was improved. Although the post-test scores were higher than the pre-test scores, they were not increasingly significant. Because the changes in dietary intake were not significant, the researcher recommended nutrition education programs that are longer or ongoing to evaluate effectiveness.

The effects of nutrition education have also been supported with myocardial infarction patients. A study supported by the World Health Organization helped to reveal the effect of nutrition education on the diet and nutrient intake of 194 patients (inclusive of elderly). The data were obtained by interviews and the 24-hour recall over 24 months. The nutrition education program consisted of: Nutrition classes, using the lecture method and food-preparation method and individual counseling sessions. At the conclusion of the

study, group means were compared by use of the t-test. There was a reduction in patients weights, reduction in serum lipid levels and a change in food choices. The researcher concluded that nutrition education had a considerable effect on the patients. However, a year follow-up found minor reversals in the 164 patients who were still alive and willing to participate. After the evaluation, the researcher suggested follow-up sessions of re-motivation and repeated nutrition education to maintain changed behaviors (Karvetti, 1981).

"The ultimate goal of health education is maintenance and improvement of health and an intermediate goal is to modify behavior deleterious to health" (Collins and Pickard, 1982, p. 384). These researchers "examined health knowledge and contrasted the health behaviors of senior citizens who received extensive health education with those who received far less" (Collins and Pickard, 1982, p. 382). The participants of this study were selected from two apartment complexes. At one complex, the residents received extensive health education directly from nurses who were present daily while residents at the second complex received nursing information by telephone. Data were collected on health knowledge, health practices and understanding of personal diseases and conditions. This study concluded that health education is extremely significant in promoting and maintaining the health of the elderly. The residents that received extensive health education had significantly more health knowledge than the other residents (81% versus 68%) and significantly more positive health

behavior (87% versus 76%). (Collins and Pickard 1982) suggested that health education programs can be effective and efficient if three steps are followed:

1. identify the most common health problems experienced by the population (e.g. hypertension, diabetes).

2. identify strategies that people with each particular problem need to know.

3. formulate what has to be learned in the form of desired behavioral outcomes and analyze each outcome in terms of: frequency, persistence, earliness, quality, and range (p. 385).

Above all else, the researchers agreed that the active involvement of the participants is essential through all steps (Collins and Pickard, 1982).

Not only is active involvement of the participants essential but so is voluntary involvement. Kohrs (1982) conducted a pilot study of nutrition education with an emphasis on voluntary attendance. The nutrition program included basic nutrition concepts, discussions, door prizes and nutritious refreshments. Data were collected by means of a nutrition knowledge test and analyzed by analysis of covariance. The results showed a significant gain in nutrition knowledge for those that attended the classes regularly.

Some researchers have suggested that the elderly participants want to attend the programs on a volunteer basis and be actively involved in the program. Silverstone (1983) suggests that this involvement does not only include an active audience, but the elderly participants would also enjoy being active presenters. Silverstone discussed a peer educator approach to nutrition

education for the elderly. The peer educators received training through workshops conducted by nutritionists and gerontologists; they then conducted nutrition sessions for their peers.

The peer educators were to stimulate interest in nutrition and serve as resource persons. At the end of the sessions, the peer educators received 933 evaluations from voluntary participants who concluded, the information was useful. The participants also suggested that the peer education approach should be continued. There was one negative report, a white peer educator conducted a session in a Spanish speaking center where the needs and values were different from those of the peer educator; the only commonality was age. The researcher concluded that the peer educator approach is useful in providing nutrition education for the elderly. However, for a strong support system to exist, the peer educators should have a true peer relationship with their audience and provide follow-up to them (Silverstone, 1983).

In a similar study, Lasswell and Curry (1979) designed a pilot program to instruct the elderly in basic nutrition. The program included 25 elderly between 60-85 years of age. The participants were all involved in the Friendly Visitor Program which was founded to train persons to aid the homebound elderly. During the pilot program, participants were trained as peer educators; methods used were class discussions, recitation, and role playing situations which might occur during home visits. Each participant completed the program, including a nutrition knowledge test, before assisting the homebound elderly.

The pre-post design was used and the data analyzed by the t-test. The researchers found a significant difference between the pre and post-test results.

Positive feedback was received from the participants that served as the peer educators and from the homebound elderly. The researchers concluded that the elderly need nutrition education and they benefit from it. They suggested that the elderly are willing to change old habits and beliefs to conform to researched facts rather than myths. They also supported peer education for the elderly, especially homebound elderly where a support system as such is encouraging (Lasswell and Curry, 1979).

Parham (1980) states that a support system is essential and that nutrition education programs for the elderly should emphasize motivation and emotional support. Also, nutrition education programs will be more effective if they are systematic and continuous.

Spitze (1983) supports Parham's idea of continuous nutrition education. She conducted a study to measure the nutrition knowledge of 100 men (inclusive of elderly). These men were full-time workers at a large midwestern university. They were administered a nutrition knowledge test and interviewed for personal data and information regarding food-related activities. The researcher used the Pearson Product-Moment Correlation to determine significance between knowledge and age, educational level and participation in food-related activities. The participants scored 65% on the true-false nutrition knowledge test. The researcher found the men to have moderate knowledge about general nutrition and very limited knowledge about sources and functions of nutrients. There was

no significant correlation between nutrition knowledge and the other three variables. These results helped the researcher to conclude that continuous nutrition education is needed. The researcher suggested that there was a need for nutrition educators to inform men of specific nutrients, in an effort to increase their nutrition knowledge and improve their food choices.

The studies discussed have shown a direct relationship between food habits and nutrition education and the need for additional nutrition information. If the food habits of the elderly are to improve, nutrition education programs need to be implemented. These programs should focus on the active involvement of the participants, in an effort to increase nutritional knowledge, enhance food choices, meal planning and preparation skills.

Chapter III - Methodology

Introduction

The purpose of this study was to determine the effectiveness of a nutrition teaching module for the elderly. Also, this study was designed to improve the capability of the elderly to plan and prepare their own nutritious meals. The study included 60 persons, 30 of whom served as the experimental group while 30 others made up the control group. It was conducted in February 1983, at the Happy Haven Nutrition Center in Dallas, Texas.

The purpose of this chapter is to present the procedures involved in the conduct of this study. The chapter is divided into the following headings; (1) Preliminary Procedures, (2) Selection of the Sites, (3) Selection of the Participants, (4) Selection of the Instruments, (5) Collection of Data, and (6) Treatment of Data.

Preliminary Procedures

Appropriate criteria were established for: (1) Selection of the Site, (2) Selection of the Participants, (3) Selection of the Instruments, and (4) Administration of the Instruments. After establishing the criteria for these areas, reviewing the options and making the final decisions, personal interviews were conducted with the administrator of the Dallas County Nutrition Program and the Director of Happy Haven Nutrition Center.

The interviews were conducted to discuss the design of the study, and to request permission from the administrator to conduct the study. The interviews were not only necessary to request permission but to discuss the possibility of conducting the study through a series of existing activities. This procedure was essential to the administrator and the director as a safeguard for the stability of the participants, also in an effort to increase participation.

Permission was granted by the administrator of The Dallas County Nutrition Program to conduct the study with the understanding that the study would be conducted through existing activities (See Appendix A for a Copy of letter). Examples of existing activities were: preplanned health screening week, shopping trips, monthly birthday celebration and the morning free-hour.

Selection of the Site

The following criteria were established for the selection of the site:

1. The director at the site must be willing to give permission for the study to be conducted.
2. There is no cost for the use of the site.
3. The site must be within daily driving distance for the investigator.
4. The site must have classroom space available for the educational phase of the study.
5. The site must have kitchen facilities available.
6. The site must be within walking distance from a grocery store.
7. A minimum of 60 participants at the site must be willing to participate in the study.

8. The participants at the site must be comprised of more than one ethnic group.

After establishing criteria for the selection of the site, the investigator had to determine which site to choose because there are many Dallas County Nutrition Centers throughout the city. After discussing the criteria for the site with the administrator of The Dallas Country Nutrition Program, the Nutritionist (Rosa Adair) for the City of Dallas and the Supervisor (Eadie Newell) of Geriatrics and Nursing for the City of Dallas (the latter two were included because of their involvement with the participants of The Dallas County Nutrition Program) the investigator received three site recommendations. Permission was granted by the three directors to conduct the study and after a tour of each facility and interviews with each director, the investigator selected Happy Haven Nutrition Center. Happy Haven was chosen because of its participants and its location, facilities and calendar were compatible with the study. In addition, Happy Haven met all the established criteria that had been set by the investigator.

Selection of the Participants

The following criteria were established for the selection of the participants:

1. Participants must be clients of The Dallas County Nutrition Program.
2. Participants must be clients at Happy Haven Nutrition Center.
3. Participants must be willing to participate in the study.
4. Participants must be willing to be in attendance during the study's activities.

5. Participants must be willing to answer all questions for the RTNKT and the MPSQ.

Sixty participants were randomly chosen from Happy Haven Nutrition Center. The Director of the center submitted a list of names to the investigator of those willing to participate in the study. From that list, the investigator randomly selected the participants.

Selection of the Instruments

The following criteria were established for the selection of an instrument to measure knowledge of nutrition.

1. The instrument must be considered adequate to measure nutrition knowledge.

2. The instrument must be recognized by nutrition educators as being appropriate to measure nutrition knowledge.

3. The instrument must be readable for the participants.

4. The instrument must be completed within twenty minutes.

5. The instrument must not cost more than fifty cents per copy.

To measure knowledge of nutrition, the Ross-Thomas Nutrition Knowledge Test was used. It was developed by the investigator in 1982 and through a field test was proven adequate with respect to reliability and validity. During the field test, the instruments were given to twelve individuals who were similar in nature to the actual participants in the study. This group was also part of the Dallas County Nutrition Program who were housed at another facility. The completed instruments were collected and scored using the split-half correlation technique

to determine reliability. Each participant's instrument was divided into two subscores, one consisting of all odd-numbered items on the RTNKT, and the other, all even-numbered items. The Pearson Product-Moment Correlation for the two halves on the RTNKT was .68 The Spearman-Brown formula was then applied to give an estimate of the reliability of the overall instrument. The correlation coefficient for this analysis was .81 (See Appendix D for Raw Data and Calculations).

The investigator first identified food selection practices, shopping techniques, meal planning practices and general health-related lifestyle practices as reference points in an effort to determine content validity. This series of nutritionally-related behaviors was compiled from several sources including the Nutrition Service Guide, professional nutrition educators in the field, and from the intended purposes of this study. This information served as a basis for checking relevant test items to see that the critical content had been included. This procedure, while not producing any hard data, did satisfy the investigator that the instrument did, in fact, include the relevant items for the intended investigation. By inspection, the investigator did an item-by-item check of the instrument comparing each one to the original list of learning behaviors. No item on the original list of learning behaviors was omitted from the instrument. This instrument was developed because there was not an existing instrument proven adequate to measure nutrition knowledge of the elderly. This instrument was reviewed and modified by three nutrition educators in Texas (Rosa Adair, Eadie Newell and Alta Reber). It was accepted as being

appropriate to measure nutrition knowledge. This true-false test consists of forty-two items (See Appendix C for Copy).

The following criteria were established for the selection of an instrument to determine meal planning skills.

1. The instrument must be considered adequate to determine meal planning skills.

2. The instrument must be approved by nutrition educators to determine meal planning skills.

3. The instrument must consist of foods from different ethnic groups.

4. The instrument must be completed within fifteen minutes.

5. The instrument must not cost more than fifty cents each.

The Meal Planning Skills Questionnaire was the instrument selected. It was developed in 1982 by the investigator and through a field test was proven adequate with respect to reliability and validity. The procedures used to establish validity and reliability for the knowledge test were also followed for the Meal Planning Skills Questionnaire. The split-half correlation technique resulted in a reliability of .37 and the Spearman-Brown reliability was .54 (See Appendix D for Raw Data and Calculations). This instrument was also reviewed and modified by three nutrition educators in Texas. It was accepted as appropriate to determine meal planning skills. This questionnaire was designed to determine meal planning skills and includes fifteen multiple choice items (See Appendix C for Copy).

The investigator also utilized a Meal Planning Preparation Experience whereby participants planned and prepared a nutritious meal. Although used as an instrument, there were no criteria established for this portion of the study.

Collection of the Data

The collection of the data was divided into two phases: (1) the steps for the administration of the instruments and (2) procedures to be followed in the collection of data.

Administration of the Instruments

The following preliminary steps were established for the administration of the instruments:

1. The investigator must have written permission from the administrator of The Dallas County Nutrition Program to administer the instruments to the participants (See Appendix A for Copy of Letter).

2. The investigator must have all necessary permission to administer the instruments at the chosen site.

3. The investigator must conduct a field test to check for clarity and readability.

4. The instruments must be administered in February 1983.

Procedures to be followed in the Collection of Data

The following procedures were established for the collection of the data:

1. The investigator was certain that all directions were comprehensive.

2. The investigator administered the instruments to both groups at the same time.

3. The investigator gave instructions before the participants began and answered any questions. Instructions were given orally and by visual aid (Participants were asked to circle the correct answer a or b).

4. Participants were instructed not to discuss items on the instruments or answers with others in the room.

5. Participants were instructed to return instruments to the investigator immediately after completion.

Treatment of the Data

The Ross-Thomas Nutrition Knowledge Test was scored for each participant. The test consists of forty-two true-false statements that were given one point each. Each statement was scored and the scores were added to give each participant one total score.

The Meal Planning Skills Questionnaire was scored for each participant. The questionnaire consists of fifteen multiple choice items that were given one point each; fifteen possible points. Each item was scored and the scores were added to give each participant one total score.

Before the actual preparation of the nutritious meal during the Meal Planning Preparation Experience, each participant planned a meal. Each individual meal was scored on a one-to-four scale; one point for each basic food group. Each participant was then given one total score for the entire test (See Appendix D for Actual Scores).

Nutrition Knowledge Test

The statistical procedure, used with this instrument, was used to test hypothesis number one (See Chapter 1 for hypothesis). Attention was focused on

the following: to determine if a relationship exists between exposure to the nutrition teaching module and post-test scores on the RTNKT. To analyze this relationship the dependent and independent samples t-tests were used. The means and standard deviations for both groups were computed and analyzed.

Meal Planning Skills Questionnaire

The statistical procedure, used with this instrument, was used to test hypothesis number two (See Chapter I for hypothesis). Attention was focused on the following: to determine if a relationship exists between exposure to the nutrition teaching module and post-test scores on the MPSQ. To analyze this relationship the dependent and independent samples t-tests were used. The means and standard deviations for the experimental and control groups were computed and the differences between the means analyzed to determine significance.

Meal Planning Preparation Experience

The statistical procedure, involved with the Meal Planning Preparation Experience, was used to test hypothesis three (See Chapter I for hypothesis). Attention was focused on the following:

1. to determine how many participants could plan a nutritious meal.

2. to determine the relationship between exposure to the nutrition teaching module and scores on the MPPE.

To give a clear picture and present the results of the planned nutritious meals the investigator constructed two bar graphs (See Figures 1 and 2).

To determine the relationship between exposure to the teaching module and scores on the MPPE, the independent samples t-test was used. The means

and standard deviations were computed and an analysis for differences between the means was made.

After the score data were analyzed, the investigator was prepared to test hypotheses four, five, six, and seven (See Chapter 1 for hypotheses). To analyze these relationships, The Pearson Product-Moment Correlation and the Fisher's Z-transformation were used.

The investigator compared each G_1 participant's post-test score from the nutrition knowledge test and the meal planning skills questionnaire to test hypothesis four, by use of the Pearson Product-Moment Correlation. A comparison of each G_1 participant's post-test score on the nutrition knowledge test and the meal planning preparation experience was performed to test hypothesis six by use of the Pearson Product-Moment Correlation.

To analyze the relationship in hypothesis five, the pre-test and post-test scores on both the RTNKT and the MPPE were correlated. The investigator was then able to compare the correlations for G_1 and G_2 by use of the Pearson Product-Moment Correlation and Fisher's Z-transformation.

To analyze the relationship in hypothesis seven, the post-test scores on both the RTNKT and the MPPE were correlated. The investigator was then able to compare the correlations for G_1 and G_2 by use of the Pearson Product-Moment Correlation and Fisher's Z-transformation.

Chapter IV - Findings of the Study

Introduction

The purpose of this chapter is to present the findings of the study. The findings were based on data collected from sixty participants in Dallas, Texas, during February, 1983. The study included random samples of 30 voluntary participants from each of two groups. The experimental group received extensive nutrition education while the control group was isolated from any organized nutrition education.

Three instruments were utilized to collect the data: (1) RTNKT, (2) MPSQ, and (3) MPPE, (See Appendix C for copy of instruments). The data were treated statistically by means of the dependent samples t-test, the independent samples t-test, the Pearson Product-Moment Correlation and the Fisher's Z-transformation. Each hypothesis was tested at the .05 level of significance. The tabular form of each analysis is presented in this chapter. The chapter is divided into two parts: (1) description of the samples, and (2) presentation and analysis of the participants' response to the instruments.

Description of the Samples

Each sample for this study consisted of 30 individuals, sixty years of age or older, each of whom was a resident of Dallas County. Each person was also a participant in The Dallas County Nutrition Program and a client at the Happy Haven Nutrition Center.

Tables 2 and 3 are illustrations of the age distribution of both the experimental and control groups. The number and percent of participants by age are presented below:

Table 2

Number of Participants in the Experimental Group by Age

Age	N	Percent of Total
60-64 Years	2	6.7%
65-69 Years	12	40.0%
70-74 Years	8	26.6%
75-79 Years	6	20.0%
80 or Older	2	6.7%
Total	30	100.0%

During the individualized sessions, participants were asked to identify the age group to which each belongs. Of all the participants in the experimental group, two were in the 60-64 age group and the 80 or older age group. A total of twelve persons were in the 65-69 age group, while there were eight in the 70-74 age group, and six in the 75-79 age group.

Table 3

Number of Participants in the Control Group by Age

Age	N	Percent of Total
60-64 Years	3	10.0%
65-69 Years	14	46.7%
70-74 Years	7	23.3%
75-79 Years	6	20.0%
80 or Older	0	.0%
Total	30	100.0%

Of all the participants in the control group, three were in the 60-64 age group, 14 in the 65-69 age group, seven in the 70-74 age group and six in the 75-79 age group. There were no participants in the 80 or older age group.

An analysis of Tables 2 and 3 reveals how closely the two groups approximated each other in age. Of all the participants in the experimental group, only eight were 75 or older. In the control group, only six were 75 or older.

Tables 4 and 5 represent the distribution of race in both the experimental and control groups. The number and percentage breakdown of participants by race follow.

Table 4

Number of Participants in the Experimental Group by Race

Race	N	Percent of Total
Black	24	80.0%
Anglo	5	16.7%
Mexican American	1	3.3%
Total	30	100.0%

Participants were also asked to denote their race during the individualized sessions. The results of this information for the experimental group is presented in Table 4.

Table 5

Number of Participants in the Control Group by Race

Race	N	Percent of Total
Black	26	86.7%
Anglo	4	13.3%
Mexican American	0	.0%
Total	30	100.0%

Of the 30 participants in the control group, 26 were Black and four were Anglos. There were no Mexican American participants in the control group and only one in the experimental group.

Tables 4 and 5 also help to reveal the homogeneity of the two groups. The majority of the participants in each group were Black.

Tables 6 and 7 provide information concerning the sex of all participants in the experimental and control groups. The number and percent of participants by sex are presented below and on the next page.

Table 6

Number of Participants in the Experimental Group by Sex

Sex	N	Percent of Total
Female	19	63.3%
Male	11	36.7%
Total	30	100.0%

Table 7

Number of Participants in the Control Group by Sex

Sex	N	Percent of Total
Female	22	73.3%
Male	8	26.7%
Total	30	100.0%

Of the 30 participants in the experimental group, 19 were female and 11 were male. The control group consisted of 22 females and eight males.

Tables 6 and 7 also help to emphasize the homogeneity of the two groups. The participants in both groups were similar in the breakdown by sex.

Two basic research designs were used in this study: (1) the pre-test/post-test experimental-control group design and (2) the post-test only experimental-control group design. Both of these designs were employed to test the effectiveness of the module. If the module was effective, the post-test scores of the experimental group must be significantly different than the control group in both designs.

Participants' Response to the Instruments

Nutrition Knowledge Test

Table 8 is an illustration of the results of the dependent samples t-test for both the experimental and control groups after the pre-test and post-test. There were 30 participants in each group.

Table 8

Dependent Samples t-test for Pre and Post
Ross-Thomas Nutrition Knowledge Test (RTNKT) for the Two Groups

Groups	M (Pre-Test)	SD	M (Post-Test)	SD	t
Experimental	19.77	4.34	39.30	1.24	28.30 *
Control	19.83	4.42	19.87	3.44	.10

*$p < .05$

Table 8 is a depiction of the performance of the experimental group on the Nutrition Knowledge Test. An elaboration of these findings follows:

1. The pre-test mean was lower than the post-test mean with a difference between the means of 19.53. The difference between the means was significant at the .05 level. This finding indicates that nutrition knowledge

improved during the post-test phase. After exposure to the nutrition education module, the participants were able to exhibit an increased knowledge of nutritional facts.

2. The pre-test standard deviation was higher than the post-test standard deviation. A difference of 3.1 reflects a significant increase in homogeneity of scores during the post-test phase. After exposure to the nutrition education module, the participants had similar scores which reflected an increase in knowledge. The homogeneity of scores also reflected that the nutrition knowledge of each person was basically on the same level.

3. Utilization of the t-test to compare the means yielded a significant difference at the .05 level. The increase in the post-test mean and in the homogeneity of scores, indicated that nutrition education had a positive effect on the nutrition knowledge of the experimental group.

The performance of the control group on the Nutrition Knowledge Test was as follows:

1. The pre-test mean was lower than the post-test mean. The difference between the means was .04, which was not significant. This finding indicated that nutrition knowledge did not improve significantly during the post-test phase. The control group was not exposed to any organized nutrition education and as a result their nutrition knowledge did not increase significantly.

2. The pre-test standard deviation was higher than the post-test standard deviation. A difference of .98 reflects a small increase in homogeneity

of scores. There was therefore, not a significant increase in homogeneity of scores during the post-test phase. Basically, few of the post-test scores increased to reflect a small increase in homogeneity of scores, but overall the post-test scores for the control group remained the same or decreased.

3. A comparison of the means by use of the t-test yielded no significant difference at the .05 level. There was not a significant increase of the post-test mean or homogeneity of scores. These findings suggest that the absence of nutrition education had in some instances a negative effect and in others no effect on the nutrition knowledge of the control group.

Table 8 also reveals the absence of any significant difference between the experimental and control groups on the pre-test scores of the Nutrition Knowledge Test. The difference between the means was .06; the control group had the highest mean. The difference between the standard deviations was .08, reflecting the similarity of the responses from the participants. However, there were significant differences on the post-test scores between the experimental and control groups. This finding seems to indicate that nutrition education contributed an improvement in nutrition knowledge. In other words, the experimental group, after exposure to the nutrition education module exemplified an overall increase in nutrition knowledge. The control group, although similar in nature to the experimental group, was given no organized nutrition education and therefore showed no significant increase in knowledge of nutrition from pre-test to post-test.

Furthermore, the investigator made a direct comparison between the experimental and control groups. This analysis was done by means of an independent samples t-test to compare G_1 with G_2.

Table 9 is a depiction of the results which includes 30 participants in the each group.

Table 9

Independent Samples t-test for
Ross-Thomas Nutrition Knowledge Test (RTNKT) for the Two Groups

Groups	M	SD	t
Experimental	19.53	3.80	
Control	.04	2.12	26.0*

*$p < .05$

An analysis of Table 9 reveals the actual differences between the two groups on the Nutrition Knowledge Test.

1. The difference between the means was 19.49. A comparison of the means yielded a significant difference at the .05 level.

2. The experimental group had a higher standard deviation than the control group. A difference of 1.68 reveals that there was more variability of scores for the experimental group over the pre-post phase.

3. Utilization of the t-test to compare the means yielded a significant difference at the .05 level. The experimental group had a higher gain in scores and more variability in scores. This finding also indicates that nutrition education yielded an improvement in nutrition knowledge. For the experimental group, exposure to the nutrition teaching module enabled them to be more aware of basic nutrition facts. They were able to score higher on the post-test which yielded a significant gain in scores and more variability over the pre-post phase. The control group was not exposed to the nutrition education module and over the pre-post phase their scores did not increase but remained homogeneous.

Meal Planning Skills Questionnaire

Table 10 is an illustration of the dependent sample t-test for both the experimental and control groups after the pre-test and post-test. There were 30 participants in each group. Table 10 is presented on the next page.

Table 10

Dependent Samples t-test for Pre and Post
Meal Planning Skills Questionnaire (MPSQ) for the Two Groups

Groups	M (Pre-Test)	SD	M (Post-Test)	SD	t
Experimental	7.70	1.18	13.37	1.10	18.90 *
Control	7.37	1.13	7.43	1.50	.23

*$p < .05$

Table 10 reveals the performance of the experimental group on the Meal Planning Skills Questionnaire as follows:

1. The pre-test mean was lower than the post-test mean. The difference between the means was 5.67 which suggests a significant difference at the .05 level. This finding did indicate that meal planning skills improved during the post-test phase. After exposure to the nutrition education module, the participants were able to exhibit an improvement in meal planning skills.

2. The pre-test standard deviation was higher than the post-test standard deviation. There was a difference of .08 which indicated less variability in scoring during the post-test phase. After exposure to the nutrition education module, nutrition knowledge increased and the range of scores

decreased. There was evidence that scores became more similar reflecting the participants equivalent nutritional knowledge.

3. The t-test yielded a significant difference between the means at the .05 level. The increase in the post-test mean and in the homogeneity of scores seemed to indicated that nutrition education had a positive effect on the meal planning skills of the experimental group.

The performance of the control group on the Meal Planning Skill Questionnaire was as follows:

1. The pre-test mean was lower than the post-test mean. The difference between the means was .06, which was not significant. This finding indicated that meal planning skills did not improve significantly during the post-test phase. The increase in the post-test mean was not significant at the .05 level. The participants received no organized nutrition education and their scores reflected no significant increase.

2. The post-test standard deviation was .37 higher than the pre-test standard deviation. This increase suggests more variability in scoring during the post-test phase. The post-test scores reflected a wider range than the pre-test scores, less homogeneity in answers and a decrease in knowledge of nutritional concepts.

3. The t-test revealed no significant difference between the means at the .05 level. There was not a significant increase of the post-test mean and there was a decrease in the homogeneity of scores. These findings suggest that

the absence of nutrition education had in some instances a negative effect and in others no effect on the meal planning skills of the control group.

Further analysis of Table 10 shows that there was not a significant difference between the pre-test scores of the experimental and control groups. The difference between the means was .33 and the difference between the standard deviations was .05. The small differences suggest that the participants of both groups gave similar responses during the pre-test phase. However, the post-test scores reflected a significant difference between the experimental and control groups. During the treatment phase the control group did not receive organized nutrition education and showed no significant increase from pre-test to post-test. The experimental group however, was exposed to the nutrition education module. As a result, the participants demonstrated a significant increase in knowledge from pre-test to post-test. They had a greater knowledge of nutritional facts which enabled them to possess better meal planning skills.

As a followup, an independent samples t-test was used to compare G_1 with G_2. Table 11 is a summary of the analysis of the data from the MPSQ that included 30 participants in each group. Table 11 is presented on the next page.

Table 11

Independent Samples t-test for
Meal Planning Skills Questionnaire (MPSQ) of the Two Groups

Groups	M	SD	t
Experimental	5.67	1.67	
Control	.06	1.44	14.74*

*$p < .05$

An analysis of Table 11 reveals the actual difference between the two groups on the Meal Planning Skills Questionnaire as follows:

1. The difference between the means was 5.61, with the experimental group having the highest mean.

2. The difference between the standard deviations was .23 with the experimental group having the highest standard deviation.

3. A comparison of the means by use of the t-test yielded a significant difference at the .05 level. The experimental group had a higher gain in scores and more variability in scores over the pre-post-test phase. This finding supports the contention that nutrition education enhances meal planning skills. The control group, without exposure to the nutrition education module, did not have significant increase in scores over the pre-post phase. The results of the

experimental group, with exposure to the nutrition education module did suggest again that if people know more about nutritional facts, they are more likely to possess better meal planning skills.

Meal Planning-Preparation Experience

The investigator constructed two bar graphs to present the results of the planned nutritious meals. Each graph is a representation of the response from 30 participants in one of the two groups. Figure 1 represents the experimental group and Figure 2 represents the control group.

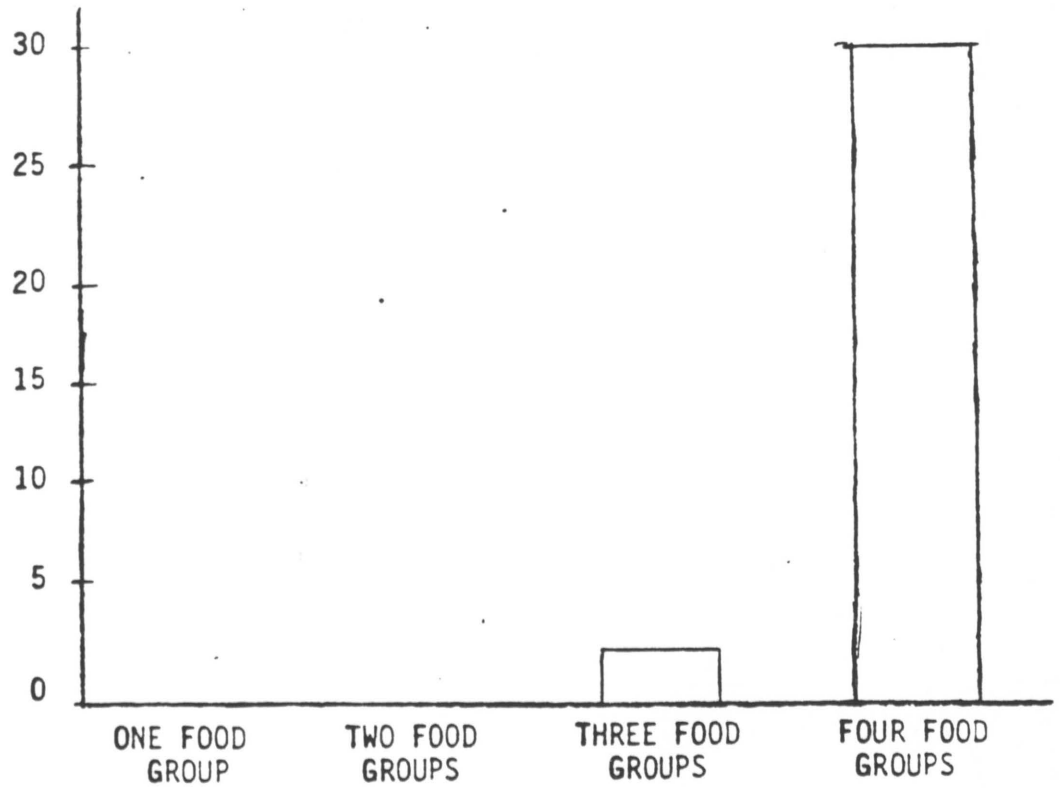


Figure 1. The number of participants in the experimental group who included the four basic food groups in planning a nutritious meal.

A review of Figure 1 reflects that 29 participants included four food groups and one participant included three food groups. This finding indicated that during the post-test phase, 97% of the participants included four food groups while planning a nutritious meal. This finding also suggests that nutrition education had a positive effect on the planning of nutritious meals.

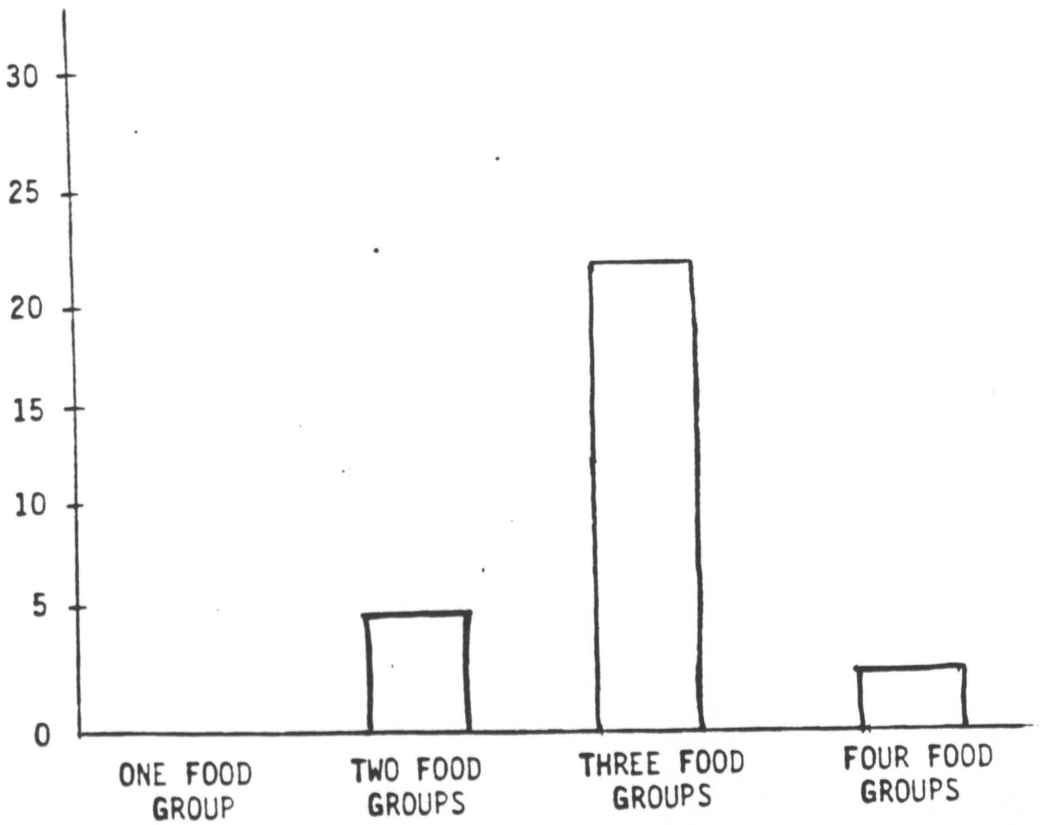


Figure 2. The number of participants in the control group who included the four basic food groups in planning a nutritious meal.

A review of Figure 2 shows that five participants included two food groups, 21 participants included three food groups and four participants included four food groups. This finding indicated that during the post-test phase, only 13% included four food groups when planning a nutritious meal.

Furthermore, an analysis of the data to determine the difference between the groups was made by use of the independent samples t-test. This analysis also determined the effectiveness of nutrition education on meal planning and preparation skills. Table 12 is a summary of the data from the MPPE.

Table 12

Independent Samples t-test for
Meal Planning-Preparation Experience (MPPE) of the two Groups

Groups	M	SD	t
Experimental	3.97	.18	
Control	2.97	.56	10.00*

*$p < .05$

An analysis of Table 12 reveal the difference in performance of both groups on the Meal Planning-Preparation Experience.

1. The experimental group had a higher mean score than the control group. The difference between the means was 1.00, with a 75% increase for the

experimental group. This finding did indicate a significant difference in the means of the two groups.

2. The control group had a higher standard deviation than the experimental group. A difference of .38 reveals more variability in scoring for the control group. The difference also suggests more homogeneity in the scores of the experimental group.

3. Use of the t-test to compare the means of the two groups yielded a significant difference at the .05 level. The experimental group had a higher mean and more homogeneity within scores than did the control group. This finding indicated that nutrition education seem to contribute to an improvement in meal planning and preparation skills. The control group, without exposure to the nutrition education module, did not have a significant mean score during the post phase. The experimental group, having exposure to the nutrition education module, had a significantly higher mean score than the control group on the MPPE. The higher mean and homogeneity nature of their scores seemed to indicate that the experimental group possessed more nutrition knowledge than did the control group. The experimental group had a greater knowledge of nutritional facts which seems to enable better meal planning and preparation skills.

Correlations of RTNKT and MPSQ for the Experimental Group

A Pearson Product-Moment Correlation between post-test scores from the RTNKT and MPSQ for the experimental group resulted in a .30. This correlation shows some association between nutrition knowledge and meal planning skills but this finding was not significant at $p = .05$. This analysis involved 30 participants.

Correlation of RTNKT and MPSQ for Both Groups

Table 13 is a representation of correlations between scores from the RTNKT and MPSQ for both the experimental and control groups. There were 30 participants in each group.

Table 13

Pearson Product-Moment Correlation Between the Pre-test and Post-test Scores on Both the Ross-Thomas Nutrition Knowledge Test (RTNKT) and Meal Planning Skills Questionnaire (MPSQ) for the two Groups

Groups	$\underline{r}$ (Pre-Test)	$\underline{r}$ (Post-Test)	P
Experimental	.23	.30	
Control	.64	.17	.05*

*$p < .05$

An analysis of Table 13 reveals a difference in correlation for the two groups over the pre-post period of .54. The difference between the pre-test correlations was .41 and between the post-test correlations was .13, a total of .54. Also, over the pre-post period the control group had a decrease of .47 and the experimental group had an increase of .07, a total difference in correlation for the two groups of .54. The difference in correlation over the pre-post period was significant at the .05.

To further analyze the correlations and test the difference between the $r_{1,2}$ for G_1 with the $r_{1,2}$ for G_2, the Fisher's Z-transformation was used. Table 14 is a representation of the Z-transformation scores for the two groups.

Table 14

Fisher's Z-transformation Scores for the Average Correlations of the Ross-Thomas Nutrition Knowledge Test (RTNKT) and Meal Planning Skills Questionnaire (MPSQ) for the two Groups

Groups	$\underline{r}$ (Average-Measure)	Z
Experimental	.272	
Control	.465	-.69

*$p < .05$

An analysis of Table 14 reveals a z-score that suggests, despite the analysis of the former table, there is no significant difference between the two samples. An analysis of Table 13 revealed a .54 difference in correlation for the two feedback groups. However, a study of Table 14 indicates that further analysis of the average correlation over the pre-post phase yielded no significant difference between the two groups.

Correlations of RTNKT and MPPE for the Experimental Group

The Pearson Product-Moment Correlation between the post-test scores from the RTNKT and MPPE for the experimental group resulted in a value of .20. This correlation suggests some relationship between nutrition knowledge and meal planning and preparation but this value was not significant at p =.05. This correlation involved 30 participants.

Correlation of RTNKT and MPPE for Both Groups

Table 15 is a representation of correlations between scores from the RTNKT and MPPE for both the experimental and control groups. There were 30 participants in each group.

Table 15

Pearson Product-Moment Correlation Between Post-test Scores from the Ross-Thomas Nutrition Knowledge Test (RTNKT) and Meal Planning-Preparation Experience (MPPE) for the two Groups

Groups	$\underline{r}$ (Post-Measure)	P
Experimental	.20	
Control	.72	-.05

*p < .05

An analysis of Table 15 reveals a relationship between nutrition knowledge and meal planning-preparation skills for both groups. There was however, a .50

difference between the post correlations which was in support of the control group.

To further analyze the correlations between G_1 and G_2 the Fisher's Z-transformation was used. Table 16 is a representation for the Z-transformation scores for the two groups.

Table 16

Fisher's Z-transformation Scores for the Correlations of the Ross-Thomas Nutrition Knowledge Test (RTNKT) and Meal Planning-Preparation Experience (MPPE) for the two Groups

Groups	$\underline{r}$ (Post-Test)	Z
Experimental	.203	
Control	.908	-2.52*

*$p < .05$

An analysis of Table 16 suggests there was a significant difference in correlation between the two groups. The 95% confidence interval extends from -.155 to -.630. Hence, it appears that the population correlation coefficient of the RTNKT and the MPPE is between -.155 and -.630. This range of -.155 to -.630 suggests that a negative correlation exists between nutrition knowledge and the meal planning-preparation experience.

Chapter V - Summary

This chapter includes (1) a summary of the study, (2) major findings, (3) tests of hypotheses, (4) conclusions and recommendations. Based on the data, recommendations for further study are suggested.

Summary of the Study

It is generally assumed that the elderly are set in their ways. If so, are they willing to make adjustments regarding food habits? Previous research has found that an increase in the realization of the relationship between food and health will lead to adjustments. The elderly are willing to enhance food choices in an effort to decrease disease, increase independence and the quality of remaining life.

The general purpose of this study was to determine the effectiveness of a nutrition teaching module designed specifically for the elderly. Secondly, to determine if nutrition education would improve their capability to plan and prepare nutritious meals. This study was designed to include nutrition education with a focus on nutritional facts and meal planning and preparation skills; an effort to impact on nutritional practices in daily living. This investigation involved 60 participants who volunteered to participate in the pre-post, post-test-only experimental design. The 60 participants were randomly assigned to two groups. Thirty participants were chosen as the experimental group and 30 were chosen to serve as the control group.

The participants were all clients at the Happy Haven Nutrition Center in Dallas, Texas.

To achieve the purposes of this study, the following three instruments were used: (1) Ross-Thomas Nutrition Knowledge Test (RTNKT) was selected to measure nutrition knowledge, (2) a meal planning skills questionnaire (MPSQ) was selected to determine meal planning skills and, (3) a meal planning-preparation experience (MPPE) which was selected to determine ability to plan and prepare a nutritious meal. The instruments were administered to the participants and data were collected during February, 1983. Following collection of the data, the dependent samples t-test, independent samples t-test, Pearson Product-Moment Corelation and the Fisher's Z-transformation were used for analysis of the data.

Findings of the Study

The major findings of this study were: (1) those that received organized nutrition education had an increase in nutrition knowledge and, (2) those that received organized nutrition education had an increase in ability to plan and prepare nutritious meals. The findings of the study suggest that the nutrition teaching module was effective in assisting the elderly to prepare nutritious meals. The findings also suggest that this study supported earlier studies that showed the contribution of active involvement of the participants in nutrition education as a positive influence on food habits. Previous research also suggested a direct relationship between positive food habits and exposure to nutrition education; a finding also supported in this study.

Test of Hypotheses

The hypotheses were tested at the .05 level of significance. After treatment and analysis of the data, each hypothesis was either accepted or rejected.

1. The participants exposed to the nutrition teaching module will have higher post-test scores on the RTNKT than the control group. Accepted.

2. The participants exposed to the nutrition teaching module will have higher post-test scores on the MPSQ than the control group. Accepted.

3. The participants exposed to the nutrition teaching module will have higher scores on the MPPE than the control group. Accepted.

4. There will be a positive relationship (at least .50), between nutrition knowledge and meal planning skills as determined by the post-test data collected from the RTNKT and the MPSQ for G_1. Rejected.

5. The correlation of nutrition knowledge and meal planning skills established over the pre-test and post-test period will be higher (at least .40) for G_1 than G_2. Rejected.

6. There will be a positive correlation (at least .50), between nutrition knowledge and the meal planning preparation experience as determined by the post-test data collected from the RTNKT and the MPPE for G_1. Rejected.

7. The correlation of nutrition knowledge and the meal planning preparation experience established during the post-test period will be higher (at least .40) for G_1 than G_2. Rejected.

Discussion

In this study, the nutrition education module was shown to be effective in increasing the nutrition knowledge and in positively changing the food habits for the experimental group. The control group showed no significant changes in nutrition knowledge or food habits. The statistical treatment of the data provided the above information which was also used to determine the decision for each hypothesis.

Hypotheses one, two, and three were concerned with a significant difference on the three instruments between the experimental and control groups. Each of the three hypotheses was accepted, there was a significant difference between the scores of the two groups on each instrument.

Hypotheses one and two were accepted because the experimental group, exposed to the teaching module had higher post-test scores on the RTNKT and the MPSQ than the control group. These findings suggested that nutrition education had a positive effect on nutrition knowledge and meal planning skills. These findings are also comparable to the findings of Collins and Pickard. They found a significant difference in the health knowledge of the participants who received extensive health education and those who received little nutrition education. (Collins and Pickard, 1982).

The experimental group also had higher scores than the control group on the MPPE which supports hypothesis three. This finding indicated that nutritional education seems to contribute to an improvement in meal planning and

preparation skills. This finding is also comparable to the finding of Todhunter. This researcher found that group feeding programs for the elderly are needed to influence food habits. He concluded that the programs would be most effective if they included nutrition education with guidance in planning and preparation of meals (Todhunter, 1973).

A study of the raw scores would suggest that the correlation between nutrition knowledge and meal planning skills was significantly higher for G_1 than G_2. It would also suggest the same for the correlation between nutrition knowledge and meal planning-preparation experience. However, the results of the statistical analysis yielded rejection of hypotheses four, five, six, and seven. These four hypotheses were concerned with the above correlations. The investigator had no logical explanation for these results.

Consultation from statisticians was sought in an effort to explain the results. Statisticians did, in fact, suggest to the investigator, that, despite obvious facts of the raw data, truncation was a major possibility. For clarification, truncation is defined as:

> Restriction of the range of values
> of one of the variables (Haber and
> Runyon, 1977, p. 161)

When truncation is present, it is possible for the value of rxy to be near zero even though x and y are highly related.

There was a small range on the Meal Planning Skills Questionnaire and an extreme restricted range on the Meal Planning Preparation Experience. Both criterion variables had limited ceilings and most experimental participants received maximum scores. Therefore, no variation was present. It is difficult to obtain true correlation when a variable lacks variation (Glass & Stanley, 1970).

Perhaps modification of the instruments (MPSQ and the MPPE) by extension of the values would decrease the influence of truncation. With the influence of truncation decreased, it is possible that hypotheses four, five, six, and seven would be accepted. Even though they were rejected, the investigator observed the correlation of nutrition knowledge and meal planning skills for the experimental group through role playing, planning of meals and grocery shopping. The correlation of nutrition knowledge and meal planning and preparation was observed through personal involvement. The investigator personally assisted the participants in buying ingredients after planning to prepare nutritious meals and in the actual preparation. The participants in the experimental group seemed excited! They shared the excitement and results of implementing what they learned; they shared information on nutritious snacks and shopping techniques with friends and neighbors in the group and at home.

Furthermore, during the post-test phase the experimental group, unlike the control group, showed a significant improvement in nutrition knowledge and in the ability to plan and prepare nutritious meals. Based on these observations and the statistical reasoning of truncation, the investigator suggests that perhaps

hypotheses four, five, six and seven would be accepted after modification of the instruments. It seemed to the investigator that the experimental group welcomed "creative" nutrition education and as their knowledge increased, they were willing to change old habits. With the elderly population, it appears that there is need and accompanying receptivity for a positive continuous nutrition education program.

Conclusion

There is a direct relationship between nutrition education and nutrition knowledge, meal planning and meal preparation. Based on the total findings of this study, it seems evident that nutrition education did lead to increased knowledge and increased ability of the elderly to plan and prepare nutritious meals.

Recommendations for Further Study

The investigator recommends the following for further research:

1. A study to consider the correlations of this study but using different instruments.

2. A similar study using the same instruments after modification of the Meal Planning Skills Questionnaire and Meal Planning-Preparation Experience to compare results of this study.

3. Further use of the Ross-Thomas Nutrition Knowledge Test for acceptance as an instrument adequate to measure nutrition knowledge of the elderly.

4. Further use of the Ross-Thomas Nutrition Knowledge Test to strengthen reliability.

5. Modification and further use of the Meal Planning Skills Questionnaire for acceptance as an instrument adequate to measure planning skills of the elderly.

6. Modification and further use of the Meal Planning Skills Questionnaire to strengthen reliability.

7. A continuation of this study with use of the time series design to determine the effect of a continuous and systematic program.

8. A study of this nature to include more men to determine if sex would yield a difference in results.

9. A replicative study to include equal participants from different ethnic groups to determine if race is a factor.

10. A study of this nature to include more utilization of peer educators to determine if that technique would be effective.

APPENDIXES

Appendix A: Letters of Approval

1. Letter to Request Permission to use teaching module

2. Permission to use teaching module

3. Permission to use Senior Citizen Centers

August 3, 1982

Betty B. Hawthorne, Ph.D
Oregon State University
Corvallis, Oregon 97331

Dear Dr. Hawthorne:

As a doctoral candidate at Texas Womans University, I have began preparation to conduct a study entitled, "The Effect of a Nutrition Teaching Module on The Elderly: An Experimental Study". The general purpose of the study is to determine the effectiveness of incorporating a module specifically for the elderly in an effort to improve their capability to plan and prepare nutritious meals. The population for the study was those attending Happy Haven Nutrition Center in Dallas, Texas. Happy Haven is one of the Nutrition Centers established under Title VII of The Older American Act of 1965.

In my research for an instrument to gather data for this study I have become familar with your Nutrition Education Program for the Elderly which was funded through Grant #94-P-7601210. It is my understanding that this program, inclusive of a teaching module, was developed primarily to be used with the same population I am interested in. Therefore, I would like to inquire concerning the following:

1. Persmission to use your teaching module entitled "Nutrition Education Resources for the Nutrition Program for the Elderly - Program Planning and Activities".

2. If permission is granted, please forward a copy of the teaching module.

3. Is there a pre-post assessment to accompany your teaching module? If you did not develop such a assessment, would you recommend an available instrument or would you suggest I develop one to accompany your teaching module?

4. If I need to develop a pre-post assessment would you agree to serve as a judge?

5. Has your teaching module been used in a similar study?

I would like to thank you in advance for your time and I look forward to hearing from you.

Sincerely,

Elaine Ross Thomas

ERT:efh

cc: David Friedman
Maryanne Staton

School of Home Economics
Oregon State University
Corvallis, Oregon 97331 (503) 754-3551 3645

September 16, 1982

Ms. Elaine Ross-Thomas
1850 Meadow Valley Lane
Dallas, Texas 75232

Dear Ms. Ross-Thomas:

I apologize for the delay in answering your letter of August 3 to Dr. Betty E. Hawthorne. She forwarded it to me for reply since I was one of the authors of the material you were inquiring about and I only returned to campus yesterday from summer break.

You are correct that we developed nutrition education materials for the elderly. The publication to which you refer contains over 20 teaching modules.

In answer to your questions:

1. You have our permission to use the materials.
2. Copies are no longer available. We could copy the book for you at a cost of $6.48 plus postage of $3.30 (first class) or 86¢ (book rate).
3. While they were tested in meal sites, no formal assessment of their effectiveness was conducted, nor have I knowledge of an available assessment instrument. I do not feel in a position to make a recommendation.
4. I could not agree until I knew the extent of the commitment. I would like to help but I am overly committed with work this year and would not want to disappoint you by not having time to work on it.
5. As far as I know, the modules have not been used in a similar study.

Please let me know if I can be of assistance to you. I wish you success in your study.

Sincerely,
Maryanne Staton
Maryanne Staton
Professor

MS/pw

P.S. Enclosed is the copy of your letter which was intended for David Friedman but was accidentally addressed to him at Oregon State University.

DALLAS COUNTY

DEPARTMENT OF HUMAN SERVICES
NUTRITION PROGRAM

May 21, 1984

To Whom It May Concern:

This is to certify that Elaine Thomas received permission from the Dallas County Nutrition Program to work with older adults in the summer of 1982.

Sincerely,

Jim Robinson, Assistant Director
Department of Human Services-Nutrition

JR:ws

4917 Harry Hines Boulevard • Suite II Dallas, Texas 75235 • (214) 638-0316

Appendix B: Copy of Teaching Module

School of Home Economics • Oregon State University

Nutrition Education Resources

PROGRAM PLANNING AND ACTIVITIES

The Nutrition Program for the Elderly

MODULE INDEX

Module Number	Method	Topic
M-5	Mini-Lecture and Handout	Nutritional Value of Food
M-6	Illustrated Talk	Vitamin C
M-7	Skit	Preparing Meals For One
M-8a	Poster & Group Activity	Basic Four and Meal Planning
M-8b*	Poster & Group Activity	Basic Four, Planning and Meal Preparation
M-11	Puppet Show	Fruits and Vegetables
M-12	Film, Discussion, Posters	Nutritional Labels
M-13*	Tic Tac Toe	Fiber in the Diet
M-14	Role Play	Buying Vegetables
M-15	Game With Small Groups	Cost of Protein from Selected Foods
M-16*	Presentation	Cardiovascular Disease
M-19	Test	Food Fads
M-21	Placemats with Game	Snacks
M-22	Self-Learning Display, Mini-Lecture	Iron
M-23a	Slides & Discussion	Shopping Techniques
M-23b*	Shopping Trip	Shopping Techniques
M-24	Group Cooking Experience	Meal Preparation

*Additions

M-5

Method: Mini-lecture and handout
Presented by: Site personnel/volunteer; prepared by dietitian
Topic: Nutritional value of food

MENU COORDINATED NUTRITION COMMENTS

GOAL

To provide nutritional and cost information about foods in the Title VII menu

APPROXIMATE TIME

3-5 minutes

MATERIALS NEEDED

- Comments prepared by the project dietitian based on the daily menu
- Optional -- handout, display, bulletin board, or actual serving of a featured unfamiliar food can reinforce presentation

ACTIVITY

Prior to eating the meal, the site manager or person making announcements reads the comments prepared by the project dietitian to coordinate with the menu

TIPS FOR THE LEADER

- Stand so most participants can hear you (a microphone may be necessary).
- If you read the comments, hold the copy so you can project your voice to the audience rather than down at the paper.
- Occasional displays, table decorations or bulletin boards on the same theme can be made to reinforce the important points. Participants may volunteer to assist.
- The attached handout can be printed on both sides of 8 1/2" x 14" paper, folded in the center. It is reproduced here on four sheets of paper in order that better quality prints can be obtained.

Adapted from materials developed by Elizabeth Gantt, Commission on Aging Project, School of Home Economics, Auburn University, Auburn, Alabama

M-5, page 2

Ham and Escalloped Potatoes au Gratin

Buttered Broccoli

Hot Roll and Margarine

Fresh Banana

Coffee Milk

- Both cooked and raw fruits and vegetables are important to our diet. They provide vitamins, minerals and bulk. Bulk or cellulose is not digested but helps move foods through the digestive system. Foods high in bulk act as a laxative and are important in preventing or curing constipation.

- A fresh banana is our dessert today. It is low in calories compared to many desserts.

- The potatoes in the casserole are a moderate source of vitamin C and iron.

- Broccoli is a type of "green" that you might not eat as often as other vegetables. Broccoli is high in vitamins A and C. iron, and calcium and is low in calories. Vitamin C helps your body fight infections and keeps your gums healthy.

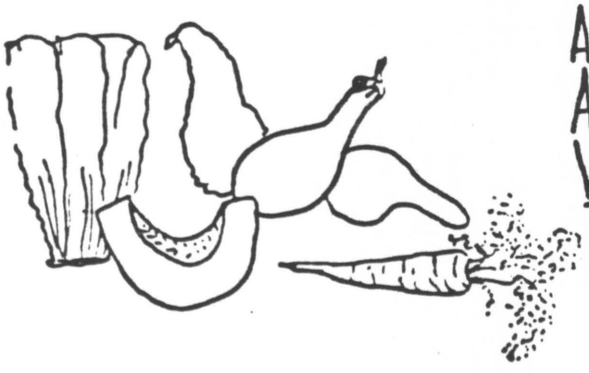
- Frozen chopped broccoli is a good buy at the grocery store and often costs 10¢ less per package than broccoli spears. If you are going to put it in a casserole, buy chopped broccoli and save money. In fact, unless you are fixing a special meal and just want it to look pretty, chopped broccoli would be your best buy.

- Today you have at your place a handout on vitamin A with a recipe for broccoli that you may enjoy. It freezes well so you can save some for another week or when you are having guests.

M-5, page 3

Do You Remember When

Your Mother Cooked Turnip Greens, Squash And Sweet Potatoes On A Stove Like This?



All Kinds Of Green And Yellow Vegetables Were Good For You Then, And They Are Still Good For You. These Vegetables Are Good For You Because They Have VITAMIN A.

Look For The Word *FORTIFIED* On Milk Cartons And Margarine Labels. That Means That VITAMIN A Has Been Added.

M-5, page 5

NOW THAT YOU'RE OLDER VITAMIN A IS JUST AS IMPORTANT AS WHEN YOU WERE YOUNG BECAUSE:

IT HELPS YOUR EYES TO SEE IN DIM LIGHT,

AND,

HELPS KEEP YOUR SKIN FROM CRACKING AND BEING ROUGH.

Broccoli – A Vitamin A Rich Vegetable

Broccoli Casserole

1 Box Chopped Broccoli
1 Can Cream Of Celery Soup
Some Grated Cheese

Makes 4 Servings Freeze Some For Another Day.

Thaw Broccoli In A Few Tablespoons Of Water
Do Not Cook Completely.

Put Broccoli In Baking Dish. Pour Soup
Over It. Sprinkle With Grated Cheese.

Bake In The Oven 20 Minutes At 350°

Commission On Aging Project
School Of Home Economics
Auburn University
Cosponsored By Alabama Commission On Aging

M-5, page 7

Tomato Juice

Baked Round Steak

Buttered Green Peas Tossed Vegetable Salad with Dressing

Hot Bran Muffin and Margarine

Baked Apple

Tea Milk

- You may have noticed that these meals include 2 or 3 servings of vegetables and fruits everyday. There are many different ones to choose from and by choosing a variety of foods -- you can get the vitamins and minerals your body needs. Let's look at some of the foods on today's menu.

- Tomato juice is good for breakfast or for a snack. It is especially good for those of us who need to watch our calories. Tomato juice contains both vitamins A and C. Vitamin A helps eyes adjust to dim light. It is also necessary for healthy skin. The linings of the digestive tract and lungs are a part of your skin. If your skin is healthy, it is easier for your body to resist colds, flu and infections.

- A lot of people have the idea that peas are too "starchy" and high in calories. Although peas do have more calories than some green vegetables like broccoli, they give us some protein and some B vitamins. A 1/2 cup serving of peas contains only 55 calories. In today's menu peas were chosen instead of potatoes to add variety to the menu.

- Some people think milk is just for children but all of us need milk. I am sure you have heard the saying, "You never outgrow the need for milk." It's true. We all need milk every day because milk is high in calcium. Calcium helps keep our bones strong. How many of you recently have broken a bone or know a friend with a broken bone? As we get older, our bones tend to become brittle and break easier. That is one of the main reasons why we need to continue to drink milk. If you don't choose to drink milk, be sure to eat cheese, puddings, ice cream, milk-based soups or other foods that are made with milk.

M-5, page 8

Orange Juice

Braised Beef and Noodles

Leaf Spinach and Vinegar

Mixed Vegetables
(cooked with margarine)

Gingerbread
with
Lemon Sauce

Coffee Milk

- Let's look at the vegetables and fruits in today's menu and see why they are included.

- Orange juice is a very good source of vitamin C. Vitamin C helps us have healthy gums, helps heal wounds and helps prevent infections. Our bodies cannot store vitamin C so it is important that we eat a food high in vitamin C every day. You can meet the body's need for vitamin C for one day by drinking 1/2 cup of orange juice.

- Today's menu is high in vitamin A and vitamin C because of the spinach and mixed vegetables and orange juice. We rely on vegetables and fruits to supply these vitamins. Other vitamins, such as niacin, are found in breads and cereals, pork and poultry. It is important to eat a variety of foods to meet the needs of the body.

- There are many kinds of vegetables to choose from. Mixed vegetables are an inexpensive and attractive way to improve your diet. Compare the cost of mixed vegetables with other vegetables. Also, be sure to check store brands for lower prices. They are quick to fix, high in vitamin A, and make dinner plates pleasing to see.

M-5, page 9

Baked Chicken

Escalloped Tomatoes | Baked Potato

Raisin Bread and Margarine

Fresh Fruit Cup

Tea | Milk

- Escalloped tomatoes on the menu today may be new to you. They are rich in protein, iron and vitamins A and C. Tomatoes also are good to serve at home because they add color to your meal.

- Do you buy canned tomatoes? What do you use them in? If you are like I am, spaghetti, soups and stews get most of your tomatoes. If you are going to use tomatoes in this way, check to see if canned tomato pieces are less expensive. They may cost less than the whole tomatoes and taste as good. They are as nutritious as the more expensive kinds. You usually will find them at the grocery store on the bottom shelf hidden behind everything else. If you are going to mash or chop them up anyway, save some money and buy the kind that are already broken up.

- Have you ever really looked at the packets of salt on the table? Every packet has the word iodized written on it. That means that iodine has been added to the salt. Our bodies need iodine to prevent goiter. A goiter is an enlarged thyroid gland. To be sure that you do not get a goiter, buy salt that has the word "iodized" on it.*

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* For this comment you may wish to have a box of iodized salt and one box of non-iodized salt of the same brand to hold up and have available later.

M-6

Method: Illustrated talk
Presented by: Professional
Topic: Vitamin C

THE VITAMIN C QUESTION

GOALS

- To make participants aware of the importance of eating foods containing an adequate amount of vitamin C daily
- To help them know how to conserve vitamin C in foods
- To help them know how to select foods to meet their daily requirements

APPROXIMATE TIME

10 minutes

MATERIALS NEEDED

- A selection of fruits and vegetables from the attached list in the required amounts including poor sources and at least 1 citrus fruit
- Table
- Measuring utensils
- Styrofoam cups
- Dairy Council food models
- 5" x 8" cards
- Plates for displaying the foods
- Felt tip pen
- Handout (optional)

PREPARATION:

- From the attached list, choose fruits and vegetables that are seasonal and popular in your area, or ones you would like to encourage, being sure to include both good and bad sources.
- Exhibit the required amounts in an attractive display and label them with the necessary serving size. Be sure not to use fortified juices.
- Additional vitamin C sources can be illustrated with food models placed in slots made in upside down styrofoam cups.

ACTIVITY

1. Discuss vitamin C including the following points:

   . Vitamin C is needed by the body for:
   - formation and maintenance of connective tissues
   - healing of wounds and burns
   - maintaining the strength in blood vessels
   - formation of hemoglobin and the absorption of iron.

   . There is no evidence that vitamin C will cure the cold; thus far the studies have not shown that it will prevent colds.

   . Vitamin C is not stored by the body and any not used is excreted. Large doses, such as taken in pills, are usually wasted.

   . Vitamin C is an unstable nutrient. It can be destroyed by air, heat, soda, or lost by cooking in too much water or storing fresh foods too long. Vitamin C sources that cannot be eaten raw should be cooked for a short time in a small amount of water with a lid on the pan. Only the amount to be eaten at that meal should be cooked.

2. Go to the display and explore the following points:

   . An adult needs 45 milligrams of vitamin C every day. One citrus fruit will insure 100 percent of the Recommended Dietary Allowance (RDA) for the day. Amounts of other foods needed are shown in this display.

   . If you do not want to eat 2 1/4 cups of mashed potatoes, you could eat 1/4 of a green pepper for lunch and have 1 cup of mashed potatoes for supper, still meeting your daily needs. (Using food models or the actual foods, show several possible combinations.)

   . Many people prefer to drink 1/2 cup of orange juice for breakfast or as a snack. This is more than enough vitamin C for the day.

3. Pass out optional handout.

TIPS FOR TEE LEADER

It is important to include foods people think are high in vitamin C, such as apple juice, as well as the good sources. The display can be left up after your talk so everyone can view it. Perishable food can be given away in a door prize drawing.

For suggestions on preparing handouts, see "Hints for Designing and Using Handouts," Appendix C.

RESOURCE

National Dairy Council. 1974. Food models. National Dairy Council, 111 North Canal Street, Chicago, IL 60606. Set B012A, $4.50. 146 models. Set B012B. $3.00. 58 models.

Approximate Amounts of Food to Meet an Adult's Recommended Dietary Allowance (RDA) of Vitamin C

Juices:

- 3 oz orange juice*
- 4 oz canned grapefruit juice
- 18-1/2 oz of canned tomato juice*
- 2 c canned pineapple juice
- 2-3/4 c lemonade
- 22-1/2 c canned apple juice
- Grape juice (does not provide vitamin C unless fortified)
- 9 c canned prune juice

Fruits:

- 1/2 grapefruit*
- 1/2 orange*
- 1/2 c strawberries*
- 1/3 of a cantaloupe*

Vegetables:

- 4-1/2 c green beans, drained*
- 1/3 c Brussels sprouts, drained
- 1/3 c broccoli*
- 1 c spinach
- 1 c finely shredded cabbage*
- 6-1/2 c canned beets*
- 3-1/2 c canned corn*
- 5 c raw diced celery*
- 2 medium cucumbers
- 2-1/4 c mashed potatoes*
- 1/2 green pepper
- 3/4 c cooked cauliflower*
- 1-1/3 c peas*
- 1-1/2 heads Iceberg lettuce
- 1-1/2 c lima beans*
- 1 medium tomato*

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*Dairy Council food models are available.

Source: USDA. 1971. Nutritive value of foods. Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. HG-72. 30c. 41 p.

Vitamin C Information

The following information can be used in preparing a handout which will be suitable for your participants:

The body cannot store vitamin C, ~~so a supply of~~ it needs to be eaten every day.

Vitamin C is easily destroyed during preparation, cooking and storage of fruits and vegetables. Cook vitamin C-rich vegetables for a short time in a small amount of water with a lid on the pan. Fresh fruits and vegetables should not be stored for long periods of time.

Eat at least one good source of vitamin C every day or two fair sources.

Good sources of vitamin C are:

Fruits:
- grapefruit or grapefruit juice
- orange or orange juice
- cantaloupe
- guava
- mango
- papaya
- strawberries

Vegetables:
- broccoli
- Brussels sprouts
- green pepper
- sweet red pepper

Fair sources of vitamin C are:

Fruits:
- honeydew melon
- lemon
- tangerine
- watermelon

Vegetables:
- asparagus
- cabbage
- cauliflower
- collards
- garden cress
- kale
- kohlrabi
- mustard greens
- potatoes, sweet potatoes } cooked in jackets
- rutabagas
- spinach
- tomatoes and juice
- turnip greens

Poor sources of vitamin C are:

Meats, dairy products, breads and cereals.
Apple juice, grape juice and other fruits and vegetables not listed above.

M-7

Method: Skit
Presented by: Paraprofessional with volunteers
Topic: Preparing meals for one person

EATING ALONE

GOAL

To explore some of the problems people who live alone face when shopping and cooking for one and when eating alone.

APPROXIMATE TIME

10-15 minutes

MATERIALS NEEDED

- Two copies of the script in large type
- Props requested by the volunteers
- Newsprint and black felt tip pen (optional)

PREPARATION

Find two volunteers willing to present the skit and give them a chance to read it over. They may want to use props and ad lib parts of it. While this is not necessary, it would add to the presentation. It is best to keep the atmosphere as informal as possible.

ACTIVITY

1. Educator introduces the skit with a comment on what to consider; e.g., "As you are listening to the skit, think that you are hearing two participants from this site. Afterward we will see what kinds of suggestions from your own experiences may help solve some of their problems."

2. Volunteers present the skit to the group.

3. After the presentation there should be a discussion. The following questions could be included:
(Solutions could be listed on a sheet of newsprint by another volunteer.)

    - Is good nutrition (eating a variety of foods from the basic four) important for the older adult?

    - How can Mabel eat fruits and vegetables if chewing is a problem?

- How can people living alone buy foods in quantities that can be used before they spoil? Is buying powdered skim milk a good idea? It keeps well and is less expensive.
- What foods can you prepare in different ways so you don't get as tired of them?
- Are convenience foods usually more expensive? (Yes, except for cake mixes and instant coffee.) What ones are easier to prepare for those eating alone?
- What kinds of food could Matilda keep on an "emergency shelf" in case she is sick or it is raining? (List could be duplicated for later distribution.)
- Is there special cooking equipment that would make it easier to cook and save food in small quantities? (Might have available small pans, boilable plastic bags, etc.)
- What can a person do to make eating alone more pleasant and less lonely?

TIPS FOR THE LEADER

The discussion may produce some ideas from the participants for other types of programs they would like. After all the questions are discussed, ask which of these topics they would like to explore further at future sessions.

"EATING ALONE"

MABEL: I KNOW I DON'T EAT RIGHT. I USED TO WHEN MY FAMILY WAS HOME. WE ALWAYS HAD A GOOD BREAKFAST AND A HOT LUNCH, AND EVERYONE SAT DOWN FOR DINNER TOGETHER. BUT NOW IT DOESN'T SEEM WORTHWHILE TO COOK FOR JUST ME.

MATILDA: YES, I KNOW WHAT YOU MEAN, MABEL. BESIDES THAT, THERE ARE SO MANY NEW THINGS I DON'T RECOGNIZE IN THE STORES. YOU CAN GET INSTANT THIS AND POWDERED THAT. THERE ARE DIET MEALS, SPACE STICKS, NATURAL FOODS, TO SAY NOTHING OF CANNED MEALS, FROZEN MEALS AND DRIED MEALS. IT IS GETTING HARDER AND HARDER TO FIND PLAIN OLD FOOD.

MABEL: THAT'S RIGHT, MATILDA, AND EVERYTHING IS PACKAGED. THE MEAT IS WRAPPED IN BIG PIECES AND VEGETABLES ARE PACKAGED FOR FAMILIES, NOT FOR ONE PERSON. HAVE YOU EVER TRIED TO BUY ONE PORK CHOP OR A HALF-POUND OF HAMBURGER? I ALMOST HATE TO GO TO THE STORE ANYMORE.

MATILDA: AND THE PRICES! WHY I REMEMBER WHEN MILK WAS 10¢ A QUART. AND IT REALLY TASTED GOOD, NOT LIKE TODAY'S CHALKY STUFF. IT HAD CREAM ON THE TOP, TOO.

MABEL: YES, WHEN I BUY A QUART OF MILK I USUALLY HAVE TO THROW PART OF IT AWAY BECAUSE I JUST DON'T USE IT FAST ENOUGH. AND WHEN I OPEN A CAN OF PORK AND BEANS, I HAVE TO EAT IT FOR THREE OR FOUR MEALS. I GET SO TIRED OF THE SAME THING OVER AND OVER.

MATILDA: SOMETIMES I JUST DON'T FEEL LIKE EATING SO I ONLY FIX SOME SOUP OR TOAST. IT'S NO FUN TO EAT ALONE. BESIDES, IF THE WEATHER IS BAD I CAN'T ALWAYS GET TO THE STORE SO I MAKE DO WITH WHAT IS ON HAND.

MABEL: THEY TALK ABOUT EATING VEGETABLES AND FRUITS, BUT I JUST CAN'T CHEW THOSE RAW SALADS. BESIDES, IT DOESN'T MATTER WHAT I EAT, I STOPPED GROWING YEARS AGO (UP, ANYWAY!).

MATILDA: YES, ALL THIS TALK ABOUT NUTRITION IS IMPORTANT FOR THOSE YOUNG PEOPLE BUT IT CAN'T MAKE VERY MUCH DIFFERENCE TO ME. I'M TOO OLD.

Developed by the Extension Service, Oregon State University, Corvallis, Oregon 97331.

M-8a

Method: Poster and group activity
Presented by: Paraprofessional
Topic: Basic four and meal planning

COORDINATING THE DAILY MENU AND THE BASIC FOUR

GOAL

To enable Title VII participants to plan remaining meal of the day, incorporating the basic four food guide

APPROXIMATE TIME

15 minutes

MATERIALS NEEDED

For posters:

- 1 large Dairy Council poster, A Guide to Good Eating
- 2 poster boards 28" x 22" (1 white and 1 in any color that is attractive with the 5 colors of construction paper)
- Red heavy construction paper: 1 piece 11"x 11"; 1 piece 6 1/4" x 2 7/8"; 1 piece 3 1/4" x 2 7/8"
- Yellow heavy construction paper: 1 piece 11" x 11"; 2 pieces 6 1/4" x 2 7/8"; 2 pieces 3 1/4" x 2 7/8"
- Green heavy construction paper: 1 piece 11" x 11"; 4 pieces 6 1/4" x 2 7/8"; 3 pieces 3 1/4" x 2 7/8"
- Tan or light brown heavy construction paper: 1 piece 11" x 11"; 3 pieces 6 1/4" x 2 7/8"; 2 pieces 3 1/4" x 2 7/8"
- Gray heavy construction paper: 1 piece 3" x 22"; 3 pieces 6 1/4" x 2 7/8"; 2 pieces 3 1/4" x 2 7/8"
- White 3"x 5"index cards--several pieces cut in half so they are 1 1/2" x 5"
- Black felt tip marker
- Miscellaneous equipment--glue, sharp knife, scissors, ruler

For activity:

- Basic Four Food Chart poster
- Today's Menu poster
- My Meals for Today (attachment C), one for each participant
- Guide to Good Eating, mini-poster
- Optional: newsprint, felt tip marker, and masking tape

PREPARATION

The Basic Four Food Chart (see Attachment A)

1. Paste strip of gray construction paper at the bottom of the white poster board.
2. Paste the large squares (11" x 11") of colored construction paper in the appropriate area of the poster board
3. Cut out the pictures of the food from the Dairy Council poster to 6 1/2" x 6" size and glue in the appropriate squares. (The fruit and vegetable picture may need to be smaller.)
4. Print the titles and serving information on the poster.

Today's Menu Poster (see Attachment B)

1. Print "Today's Menu" at the top of a piece of colored poster board.
2. Lay the strips of construction paper on the poster board in the positions shown. Use these as a guide for where to cut diagonal slits in the poster board. The slits are for the pieces of construction paper to be inserted.
3. Cut diagonal slits in the 6 1/4" x 2 7/8" strips of construction paper so the index cards can be mounted.
4. Print each item of the day's menu on the index cards cut in half. When a mixture such as stew is served, print more than one card. (For example, one card says: "3 oz. of beef in stew" and another, "1/2 cup of vegetables in stew.")

5. Place the foods for the day on the appropriate color of construction paper keyed to the basic four food chart and insert the two into the poster board.

meat	red
fruits and vegetables	green
breads and cereals	tan or light brown
milk	yellow
butter, margarine, coffee, and tea	gray

6. If a dessert is from more than one food group use two of the smaller pieces of construction paper (3 1/4" x 2 7/8") and combine for one strip, e.g., custard with fruit--yellow/green.

ACTIVITY

1. Discuss the four food groups and the number of servings required from each.

2. Show how the menu is color coded with the basic four poster.

3. Use the handout, "My Meals for Today," and have the participants fill in the food they ate at the Title VII meal and for breakfast. An enlarged copy of this could be made on a sheet of newsprint and with their help, the lunch could be filled in the appropriate squares so they see what to do. A Guide to Good Eating can be used to help them determine what constitutes a serving.

4. Have the participants decide which foods they still need to eat today in order to reach the basic four food group goal.

TIPS FOR THE LEADER

- It is useful to have two or three volunteers who are already familiar with the "My Meals for Today" handout and with classifying foods by groups to help participants fill in the sheet.

- When each day's menu is posted every slot should be full except one in the second row, two in the third row, and the optional beverage. The four extra slots are there for days when more than the required foods in the meal pattern are served. If the required slots are not filled and at least

one red, two green, one yellow, one tan, and one gray piece of construction paper are not used, then the day's menu should be studied to see what foods need to be added.

- Participants may be interested in using the "Today's Meal Poster" and learning the pattern of Title VII meals. It could be useful in receiving suggestions for new foods they would like to see added.

RESOURCE

National Dairy Council. 1969. A guide to good eating. National Dairy Council, 111 N. Canal Street, Chicago, IL 60606. #P505. 30¢. 1 p. #P076 (mini-poster). 4¢. 2 p.

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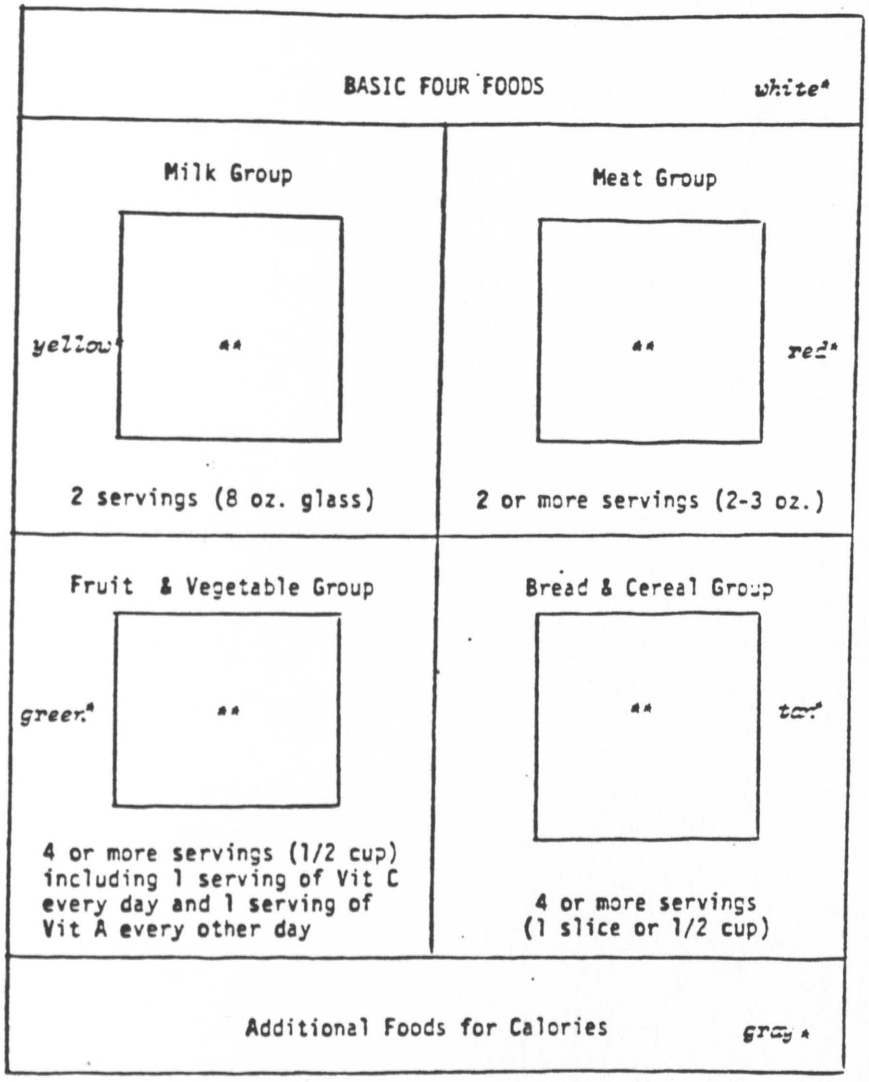
Attachment A

Example of the Basic Four Food Chart

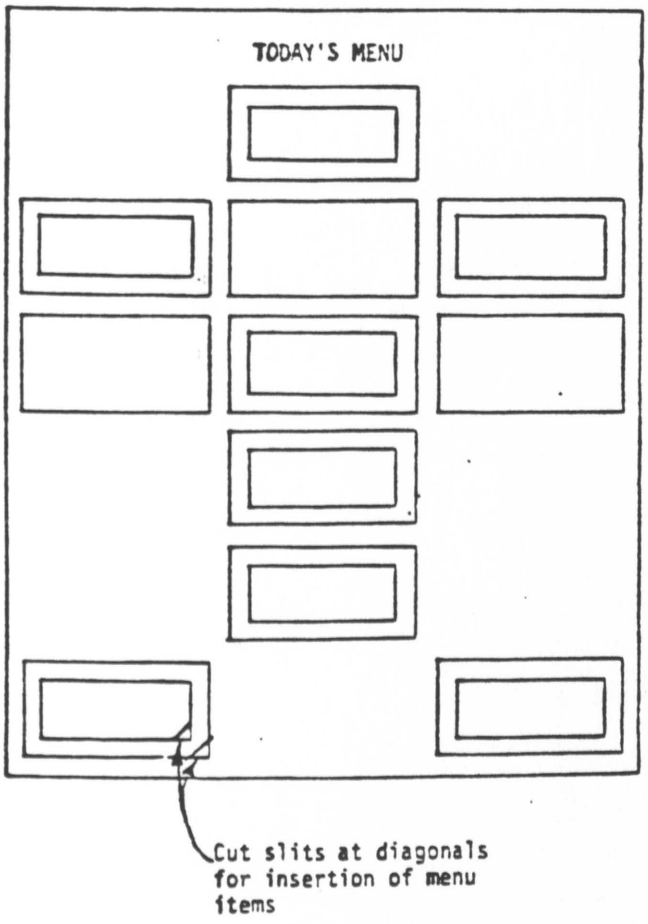


* construction paper color
** Dairy Council pictures

M-8, page 6

Attachment B

SAMPLE OF THE TITLE VII MENU POSTER



Placement of the menu items on the poster corresponds to the following pattern:

3 oz. meat or alternate

2 or more 1/2 c servings of vegetables or fruit

1 or more servings enriched or whole grain products

1 tsp. butter or margarine

1/2 c dessert

8 oz. milk; optional beverage

M-8b

Method: Poster and group activity
Presented by: Volunteer
Topic: Basic four meal planning and preparation

Continuation of 8a with emphasis on preparation of meal items.

M-11

Method: Puppet show
Presented by: Participants with discussion led by paraprofessional
Topic: Fruits and vegetables

MAKING THE RIGHT CHOICES

GOAL

To emphasize the importance of the fruit and vegetable food group and encourage eating them as snacks

APPROXIMATE TIME

10 minutes

MATERIALS NEEDED

- Five copies of puppet script
- Miscellaneous supplies for making the puppets:

  Construction paper in a variety of colors
  Felt tip pens
  Stapler
  Glue
  Scissors

- Set -- could be a long table set on its side, a slide screen raised just tall enough to cover the people, or a tall piece of furniture such as a piano.
- Optional:

  Dairy Council Comparison Cards
  Tape
  Newsprint and black felt tip pen

PREPARATION

- Find 5 volunteers a day or two prior to the presentation.
- Assign each a part and have them make a puppet. These can be made by drawing the vegetable with an appropriate expression on construction paper, cutting it out double, and stapling together at the top and sides so the hand will fit into the pocket created. Other types of puppets could be made depending on the desire of the volunteers.

- Tape the script at eye level behind the set.
- Let the participants practice, encouraging them to speak up.

ACTIVITY

1. Open the session with an introduction to the puppet show being presented by their fellow participants.
2. Present the show.
3. Thank the volunteers and let the participants see who they are.
4. Lead a discussion on the role of fruits and vegetables in the diet with questions such as:
    - What fruits and vegetables are high in vitamin A?
    - What fruits and vegetables are high in vitamin C? Are there other food sources of vitamin C?
    - How many servings of fruits and vegetables do we need each day? How big is a serving?
    - Does this food group provide any minerals?
    - What are some nutritious ways to serve fruits and vegetables as snacks?
5. Optional - write answers to these questions on newsprint as participants list them.
6. You might show the Dairy Council Comparison Cards on some of the common fruits and vegetables eaten in your area.

TIPS FOR THE LEADER

This activity can be fun especially for those who present it, if they are approached with enthusiasm. The major problem is presenting it so everyone can hear. The leader needs to be especially alert to this problem.

The participants may want to give this presentation to the children's ward of a local hospital, a nursing home or a visiting nursery school.

RESOURCE

National Dairy Council. 1974. Comparison cards. National Dairy Council, 111 North Canal Street, Chicago, IL 60606. B043. $4.00. 57 cards.

PUPPET SHOW

MAKING THE RIGHT CHOICES

CHARACTERS:

JOE
CHIEF OF FOODS
CARLOS THE CARROT
PEPPI THE GREEN PEPPER
OLLIE ORANGE

JOE: I JUST LOVE TO EAT -- BUT WHEN I EAT SO MUCH OF THE FOODS I LIKE, THERE ISN'T ROOM FOR THE FOODS I NEED.

CHIEF: YOU'VE GOT THE RIGHT START, JOE. IT IS IMPORTANT TO GET PLENTY OF THE RIGHT FOODS.

JOE: WHAT DO YOU MEAN, THE RIGHT FOODS?

CHIEF: THOSE THAT YOU LIKE THAT ALSO HELP TO KEEP YOU HEALTHY.

JOE: THAT SHOULDN'T BE HARD. I LIKE EVERYTHING.

CHIEF: OK, LET ME INTRODUCE YOU TO A FEW OF MY HELPERS. HERE IS A VERY SPECIAL FRIEND, CARLOS THE CARROT. (ENTER CARLOS) TELL US ABOUT YOURSELF.

CARLOS: I AM A FAVORITE WITH MANY PEOPLE. I PROVIDE VITAMIN A WHICH HELPS TO PREVENT NIGHT BLINDNESS, KEEPS THE SKIN SMOOTH, SOFT AND HEALTHY, AND FIGHTS OFF INFECTIONS. I COME IN MANY FORMS -- FRESH, FROZEN AND CANNED -- BUT I'M BEST WHEN EATEN RAW.

CHIEF: OTHER HELPERS WHO PROVIDE VITAMIN A ARE THE GREEN VEGETABLES. THESE INCLUDE SPINACH, ASPARAGUS, BROCCOLI AND GREEN PEPPER. HI! PEPPI. WE WERE JUST TALKING ABOUT YOU. WHAT ARE YOU NOTED FOR?

PEPPI: ALL OF US GREEN VEGETABLES HAVE VITAMIN A AND IRON AND VITAMIN C. IRON IS NEEDED FOR GOOD RED BLOOD. VITAMIN C HOLDS BODY CELLS TOGETHER AND KEEPS SKIN, GUMS AND BLOOD VESSELS HEALTHY. OTHER FOODS WITH VITAMIN C ARE RAW CABBAGE, TOMATOES AND CITRUS FRUITS. OLLIE ORANGE CAN TELL YOU MORE ABOUT IT.

OLLIE: ALL VITAMIN C FOODS HELP FIGHT INFECTION. THESE FOODS ALSO INCLUDE GRAPEFRUIT, STRAWBERRIES AND CANTALOUPE. IT IS IMPORTANT TO EAT ONE OF THESE EVERYDAY.

CHIEF: THANK YOU FOR TELLING US WHY YOU ARE NEEDED. WITH ALL OF THESE CHOICES, IT SHOULD BE EASY TO INCLUDE THE RIGHT FOODS.

JOE: NOW I CAN SEE WHY IT IS BETTER TO EAT THESE FOODS FOR SNACKS RATHER THAN CAKE, CANDY, OR POP WHICH HAVE ONLY CALORIES. I'LL SEE YOU LATER. I'M GOING TO LOOK FOR SOMETHING GOOD TO EAT. (EXIT)

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Developed by Ethel Diedrichson, Extension Specialist, The Cooperative Extension Service, Institute of Agriculture and Natural Resources, University of Nebraska at Lincoln, Lincoln, Nebraska

M-12

Method: Film, discussion and bulletin board
Presented by: Site personnel/volunteer
Topic: Nutritional labels

READ THE LABEL, SET A BETTER TABLE

GOAL

To enable participants to use food label information

APPROXIMATE TIME

25 minutes (film is 14 minutes)

MATERIALS NEEDED

- Film: Read the Label, Set a Better Table from Food and Drug Administration regional offices
- Several different food labels containing nutrition information, at least one for every two people, more if possible
- Read the Label, Set a Better Table, pamphlet from Food and Drug Administration (optional handout)
- Movie projector (extension cord, if needed)
- Screen or light colored wall
- Bulletin board (optional)
- Magnifying glass for people having difficulty reading labels (optional)

PREPARATION

- Preview the film two or three times.
- Prepare an introduction appropriate for your group.
- Identify new terms to define.
- Formulate questions for discussion at the end. Avoid questions with a "yes" or "no" answer.
- Set up the projector and check it to be sure it is in proper working order.
- A bulletin board[1] on the same topic would reinforce the lesson. (Sample plan is attached. Use real labels.)

ACTIVITY

1. Ask how many have noticed the new nutrition labels? How have they used them?

2. Introduce the movie. Define terms you think would be unfamiliar to your group. Ask participants to watch for the information on labels that may be the most useful to them.

3. Show the movie.

4. Discuss the following questions:

   - What did you find on the label that will be useful to you?
   - How can reading labels save you money?
   - How can reading labels help you lose weight? With special diets?

5. Hand out sample labels. Then ask questions:

   - Can you find how many calories are on your label?
   - Who has something that has 20 percent or more of the U.S. RDA for vitamin A? What is it?
   - Who has something that has 20 percent or more of the U.S. RDA for protein? What is it? Calcium? What is it? Iron? What is it? Thiamine? What is it? Vitamin C? What is it?
   - Who has a product that does not meet 10 percent or more of the U.S. RDA for any nutrient? What is it?

6. Collect labels and distribute the handout from the movie, if available.

TIPS FOR THE LEADER

When showing a movie, be sure there is someone who can help anyone who needs to leave the room while it is dark. It is best to have a little light in the room instead of total darkness.

The room should be arranged so all can see and hear.

For further help in using films, see "Showing Films and Slides," Appendix C.

RESOURCES

Food and Drug Administration. 1974. Read the label, set a better table (film). Food and Drug Administration, Regional Office or Modern Talking Pictures, 1205 North 45th, Seattle, WA 98105. Free loan. 14 minutes.

Food and Drug Administration. 1975. Read the label, set a better table (pamphlet). Food and Drug Administration, U.S. Department of Health, Education, and Welfare, 3600 Fishers Lane, Rockville, MD 20852. DHEW #(FDA) 75-4001. Free. 7 p.

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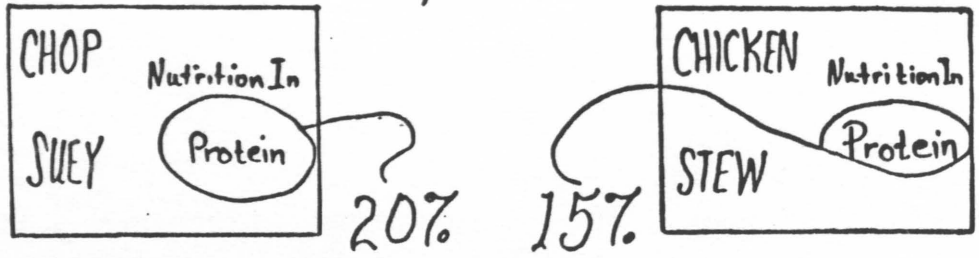
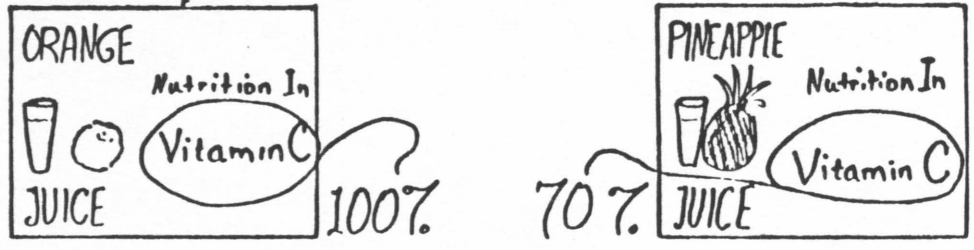
[1] Bulletin board developed by Elizabeth Gantt, Commission on Aging Project, School of Home Economics, Auburn University, Auburn, Alabama

READ THE LABEL, SET A BETTER TABLE!

Which has more protein?



Which juice has more Vitamin C?



M-12, page 4

M-13

Method: Tic Tac Toe
Presented by: Volunteer
Topic: Fiber in the Diet

Emphasis on the purpose of fiber in the diet. Explained through a mini-presentation, followed by tic tac toe game.

Digestive System	Vitamin Source to aid digestion	Food with Fiber
Food with Fiber	Who Needs Fiber	Another name for Fiber
Another name for Fiber	Food with Fiber	Vitamin Source to aid digestion

M-14

Method: Role play
Presented by: Paraprofessional
Topic: Buying vegetables

DECISIONS! DECISIONS!

GOAL

To make participants aware of factors to consider in making the most economical choices in canned and frozen vegetables

APPROXIMATE TIME

15-20 minutes

MATERIALS NEEDED

- Table
- 1 can brand name peas -- 8 1/2 ounces
- 1 can brand name peas -- 17 ounces
- 1 can store brand peas -- 17 ounces
- 1 empty box brand name frozen peas
- 1 empty box store brand frozen peas
- 1 empty box brand name frozen peas with butter or a sauce

PREPARATION

- Set up a table in the front of the room with the cans and boxes of peas.

ACTIVITY

1. Find two persons for the role play -- participants, volunteers, or high school students.
2. Assign each volunteer a role and give them their roles (attached). Allow them a few minutes to read their roles and then have them come to the front of the room.
3. Encourage the volunteers to enjoy their roles, even to overact in order to make a point. Suggest that they improvise and interpret as they see fit.
4. Describe the situation to the audience and volunteers (attached).

5. Let them act out their roles for a while. Stop for discussion before it starts dragging. Participants should be asked for other factors to consider when choosing vegetables. The discussion should center around the following factors:

   . Store brand *vs* name brand
   - Same nutritional value
   - Name brand may be a higher price because of advertising costs
   - Store brand and name brands are frequently packed by the same canner
   - Compare price of equal size unit.

   . Grades, both canned and frozen
   - How will finished casserole look? (Appearance of each pea is not important in this case.)
   - Grade definitions:
     Grade A - tender young peas with a bright uniform color and few defects.

     Grade B - color is less bright, but uniform. May be some spotted or broken peas and an occasional pod or stem. Liquid may be cloudy.

     Grade C(rare in frozen) - color variable. Peas starchy with more defects. Liquids may be very cloudy.
   - Explain how grade affects price.

   . Frozen *vs* canned
   - Intended use
   - Family preference
   - Sauce or butter *vs* adding it yourself.

   . Cost/serving

   - Which size fits need? Waste is expensive
   - Cost/serving of larger can is usually less -- calculate to double check
   - 10 ounces of frozen peas = 1 1/2 cups; 16 ounces canned = 2 cups.

6. Be sure to thank the volunteers.

TIPS FOR THE LEADER

- Role play is spontaneous and is used to create interest in a problem or suggest a solution for discussion by the total group. What the participants will say is unpredictable. This is part of the fun, but also is a frustration. If you want more control over what is said, a skit or puppet show is the solution.

- The volunteers in a role play should be picked with care. They need to be somewhat fast-thinking and not shy in front of a group. The roles should be discussed with each one personally ahead of time, but separately, so they are not aware of each other's role. However, they both need to know the situation.

- Older people may not be familiar with role play as a learning method and some may be uncertain about participating. Explain in advance that role play is spontaneously acting out a role in a "real" situation. It is reacting naturally to ideas expressed in a conversation. It is not a play with lines to read or say. If people appear to be uneasy about participating, you may wish to give them their role a day or more in advance, but request them not to "rehearse." The technique loses value when there are not spontaneous reactions.

M-14, page 4

ROLE PLAY: DECISIONS! DECISIONS!
(for leader)

The situation (Read aloud to group.)

Two ladies meet in the aisle of a large supermarket. Mrs. Luella Pratt is an elderly woman who has recently moved into a housing project. She needs to watch her food costs carefully. Mrs. Linda Perkins is a newlywed, 20 years old, and inexperienced in food shopping. She also needs to keep food costs low, but is afraid her husband won't like her cooking if she doesn't buy the very best. They meet in the canned vegetable section. We'll start with Mrs. Pratt trying to read the label.

Role*: Mrs. Luella Pratt

You are trying to choose some canned peas for a tuna noodle vegetable casserole you are serving tomorrow night to three of your neighbors. You haven't bought peas for a long time because you always canned your own. You know that it won't matter if they aren't all the same size or color because they will be cooked and mixed with other foods in the casserole. You like peas and wouldn't mind using them as a vegetable later in the week. You have heard that the store brand is usually good. You are trying to read the label to find out what brand and grade is best for you. The print is so small you decide to ask another shopper to help you.

Role*: Mrs. Linda Perkins

You are trying so hard to be a good wife and homemaker! Only now you wish you had listened to your mother and your grandmother! Which can of peas should you buy for that chicken pot pie? Your new husband is a little fussy about food, and you really want to please him with this dish. (Last night's dinner didn't go over too well!) You really believe it would be wiser to buy the very best peas available (after all, you only need one cup) but you're not completely sure. Impulsively, you feel you would like to talk it over with another customer standing next to you -- she does look a lot like your grandmother!

---

* Do not read roles to group.

ROLE PLAY: DECISIONS! DECISIONS!

(for Mrs. Pratt)

THE SITUATION

TWO LADIES MEET IN THE AISLE OF A LARGE SUPERMARKET. MRS. LUELLA PRATT IS AN ELDERLY WOMAN WHO HAS RECENTLY MOVED INTO A HOUSING PROJECT. SHE NEEDS TO WATCH HER FOOD COSTS CAREFULLY. MRS. LINDA PERKINS IS A NEWLY-WED, 20 YEARS OLD, AND INEXPERIENCED IN FOOD SHOPPING. SHE ALSO NEEDS TO KEEP FOOD COSTS LOW, BUT IS AFRAID HER HUSBAND WON'T LIKE HER COOKING IF SHE DOESN'T BUY THE VERY BEST. THEY MEET IN THE CANNED VEGETABLE SECTION. WE'LL START WITH MRS. PRATT TRYING TO READ THE LABEL.

ROLE: MRS. LUELLA PRATT

YOU ARE TRYING TO CHOOSE SOME CANNED PEAS FOR A TUNA NOODLE VEGETABLE CASSEROLE YOU ARE SERVING TOMORROW NIGHT TO THREE OF YOUR NEIGHBORS. YOU HAVEN'T BOUGHT PEAS FOR A LONG TIME BECAUSE YOU ALWAYS CANNED YOUR OWN. YOU KNOW THAT IT WON'T MATTER IF THEY AREN'T ALL THE SAME SIZE OR COLOR BECAUSE THEY WILL BE COOKED AND MIXED WITH OTHER FOODS IN THE CASSEROLE. YOU LIKE PEAS AND WOULDN'T MIND USING THEM AS A VEGETABLE LATER IN THE WEEK. YOU HAVE HEARD THAT THE STORE BRAND IS USUALLY GOOD. YOU ARE TRYING TO READ THE LABEL TO FIND OUT WHAT BRAND AND GRADE IS BEST FOR YOU. THE PRINT IS SO SMALL YOU DECIDE TO ASK ANOTHER SHOPPER TO HELP YOU.

ROLE PLAY: DECISIONS! DECISIONS!
(for Mrs. Perkins)

THE SITUATION

TWO LADIES MEET IN THE AISLE OF A LARGE SUPERMARKET. MRS. LUELLA PRATT IS AN ELDERLY WOMAN WHO HAS RECENTLY MOVED INTO A HOUSING PROJECT. SHE NEEDS TO WATCH HER FOOD COSTS CAREFULLY. MRS. LINDA PERKINS IS A NEWLY-WED, 20 YEARS OLD, AND INEXPERIENCED IN FOOD SHOPPING. SHE ALSO NEEDS TO KEEP FOOD COSTS LOW, BUT IS AFRAID HER HUSBAND WON'T LIKE HER COOKING IF SHE DOESN'T BUY THE VERY BEST. THEY MEET IN THE CANNED VEGETABLE SECTION. WE'LL START WITH MRS. PRATT TRYING TO READ THE LABEL.

ROLE: MRS. LINDA PERKINS

YOU ARE TRYING SO HARD TO BE A GOOD WIFE AND HOMEMAKER! ONLY NOW YOU WISH YOU HAD LISTENED TO YOUR MOTHER AND YOUR GRANDMOTHER! WHICH CAN OF PEAS SHOULD YOU BUY FOR THAT CHICKEN POT PIE? YOUR NEW HUSBAND IS A LITTLE FUSSY ABOUT FOOD, AND YOU REALLY WANT TO PLEASE HIM WITH THIS DISH. (LAST NIGHT'S DINNER DIDN'T GO OVER TOO WELL!) YOU REALLY BELIEVE IT WOULD BE WISER TO BUY THE VERY BEST PEAS AVAILABLE (AFTER ALL, YOU ONLY NEED ONE CUP) BUT YOU'RE NOT COMPLETELY SURE. IMPULSIVELY, YOU FEEL YOU WOULD LIKE TO TALK IT OVER WITH ANOTHER CUSTOMER STANDING NEXT TO YOU -- SHE DOES LOOK A LOT LIKE YOUR GRANDMOTHER!

M-15

Method: Game using small groups
Presented by: Site personnel/volunteer; prepared by professional
Topic: Cost of protein from selected foods

HOW MUCH DO YOU PAY FOR PROTEIN?

GOAL

To understand that some protein foods are cheaper per serving than others

APPROXIMATE TIME

20 minutes

MATERIALS NEEDED

Several sets of 10 Dairy Council food models of protein foods

PREPARATION (by a professional)

- Select 10 protein foods for ranking that are frequently eaten by older people. Include both very expensive and inexpensive foods.
- Determine the local costs of the foods selected.
- Calculate the cost per 20 grams of protein for each food selected using the local cost of the item and information on the attached work sheet, "Cost of 20 Grams of Protein from Specified Meats and Meat Alternates." (Note: If foods selected are not on this list, you can use the nutrient analysis tables on the back of the food models to do calculations.) Examples of both methods of calculation are on the attached sheet.
- Write cost per 20 grams on the back of each food model.
- Prepare ranking of food items.

ACTIVITY

1. Play a game with the food models by dividing participants into groups of four.
2. Give each group a set of food models to arrange in order from the most expensive to the least expensive foods per 20 grams of protein. (20 grams of protein is slightly more than 1/3 of the Recommended Dietary Allowance [RDA] for a man over 51 years.) A sample ranking is attached

3. After each group completes ranking, have the players turn over the models and check prices.

4. Correct ranking should be read stating food item and price per 20 grams of protein.

5. A professional, if available, can provide a mini-lecture on the value of protein in the diet and the amounts of these foods needed to meet daily protein needs. (Some foods that are inexpensive in cost per 20 grams of protein might require a large serving size to contribute much protein to the diet.)

TIPS FOR THE LEADER

- A bulletin board on the high cost of protein adds interest to this lesson when displayed for a few days prior to the game.

RESOURCE

National Dairy Council. 1974. Food models. National Dairy Council, 111 North Canal Street, Chicago, IL 60606. B012A. $4.50. 146 models. B012B. $3.00. 58 models.

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SAMPLE RANKING OF FOODS
BASED ON COST/20 GRAMS

Food Item	Cost of Market Unit	Cost Per 20 Grams of Protein
Bologna	79¢/6 oz	77¢
Pork chops, center cut	$1.98/lb	69¢
Baked beans (canned)	69¢/lb	44¢
Cheese, mild cheddar	$1.59/lb	30¢
Hamburger	79¢/lb	19¢
Milk, whole fluid	$1.29/gal	19¢
Eggs, large	64¢/doz	16¢
Cottage cheese	45¢/lb	15¢
Peanut butter	93¢/18 oz	14¢
Milk, nonfat dry	$4.48/20 qt	13¢

(Costs based on Corvallis, Oregon prices, August 1975)

Sample Calculations

Example using the percent of market unit equal to 20 grams of protein given on attached sheet:

1 gallon milk = $1.29

1/2 gallon (64 oz) milk = 65¢

.29 x 65¢ = 19¢/20 grams protein

Example using food model data:

1 gallon milk = $1.29

$$\text{cost/1 c milk} = \frac{\$1.29}{16} = 8¢$$

1 c milk contains 8.5 grams protein

$$\text{cost/1 gram} = \frac{8¢}{8.5 \text{ grams}} = 94¢$$

94¢/gram x 20 grams = 19¢/20 grams

M-16

Method: Presentation
Presented by: Professional
Topic: Cardiovascular Disease

Presentation on cardiovascular disease by the Supervisor of Geriatrics and Nursing for the City of Dallas. Blood pressures taken and individual diets assessed.

M-19

Method: Test
Presented by: Professional
Topic: Food fads

FOOD FACTS AND FALLACIES

GOAL To help participants be aware of the need to evaluate nutrition statements.

APPROXIMATE TIME 15 minutes

MATERIALS NEEDED
- Copies of quiz for everyone
- Pencils
- Answer sheet for the leader.

ACTIVITY

1. Give participants about 5 minutes to answer the agree-disagree quiz, assuring them the test will not be collected or graded. Each person will see only his or her own paper.

2. Select 8-10 "volunteers" who are good at thinking on their feet and verbalizing. Ask them to come to the front of the room.

3. Explain the rules:
   - If the volunteers agree with a question they are to go to your right.
   - If they disagree with a question they are to move to your left.
   - If they do not know the answer, they are to stay in the center.
   - The side having the fewest volunteers must defend their answer to the other group and the other group must try to convince them they are wrong.

4. Read each question aloud clearly; let the participants make their choice and defend their answers; enter into the discussion only when they cannot reach a conclusion or reach the wrong conclusion.

TIPS FOR THE LEADER
- It is best to have an easy question first so the person taking the test will feel some initial success.

- Some of the questions need to be controversial so there is some division of the group. The discussion provides a chance to correct wrong ideas and clarify misunderstandings.

- Selecting the right volunteers to be in front of the group is very important. They need to be persons who will be comfortable in giving opinions before the group and will not be upset if they answer incorrectly.

- This exercise can be used to find topics on which the group needs additional educational sessions.

- Some participants may be reluctant to take a test, and will need a great deal of reassurance. Some may need to work in pairs if eyesight is poor or if they do not read well.

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FOOD FACTS AND FALLACIES

AGREE DISAGREE 1. MILK IS ONLY NECESSARY FOR CHILDREN.

AGREE DISAGREE 2. GRAPEFRUIT AND ORANGES WILL CAUSE AN "ACID" STOMACH.

AGREE DISAGREE 3. IF ONE VITAMIN PILL A DAY IS GOOD -- TWO OR THREE ARE BETTER.

AGREE DISAGREE 4. VITAMIN E IN SUFFICIENT AMOUNTS WILL PREVENT AGING.

AGREE DISAGREE 5. HONEY CAN BE TOLERATED IN THE DIET OF A PERSON WITH DIABETES WHEREAS GRANULATED SUGAR CANNOT.

AGREE DISAGREE 6. THE FLOURIDE CONTENT IN DRINKING WATER MAY CAUSE MENTAL RETARDATION.

AGREE DISAGREE 7. ORGANICALLY GROWN FRUITS AND VEGETABLES HAVE THE SAME AMOUNTS AND KINDS OF NUTRIENTS AS THOSE GROWN WITH CHEMICAL FERTILIZERS.

AGREE DISAGREE 8. THERE IS NO SCIENTIFICALLY PROVEN DIET THAT CAN TREAT OR CURE ARTHRITIS.

AGREE DISAGREE 9. A NATURAL VITAMIN IS MORE BENEFICIAL THAN A SYNTHETIC ONE.

AGREE DISAGREE 10. ALL BOOKS ON NUTRITION FOUND AT THE LOCAL LIBRARY OR BOOKSTORE ARE ACCURATE AND RELIABLE.

FOOD FACTS AND FALLACIES FACT SHEET

1. Milk is necessary only for children. Disagree.
   Fact: All adults need two glasses of milk a day or its equivalent from cheese, yogurt or other dairy products. The milk group is the best source of calcium which the body needs to keep bones strong, the heart beating, and muscles and nerves functioning properly. Milk is also an important source of vitamin A, riboflavin and protein, in addition to many other nutrients.

2. Grapefruit and oranges will cause an "acid" stomach. Disagree.
   Fact: The acids contained in these foods are weak and they will not increase the acidity of the stomach. The stomach contents normally are acid because of the presence of hydrochloric acid, a strong acid that is useful in digesting food.

3. If one vitamin pill a day is good -- two or three are better. Disagree.
   Fact: Most people do not need to take vitamin pills. Excessive quantities of certain vitamins are excreted, but excessive quantities of vitamins A, D, E, and K are retained in the body and excesses of vitamins A and D may be dangerous. In case of illness, a physician will prescribe any needed vitamins in the proper amounts.

4. Vitamin E in sufficient amounts will prevent aging. Disagree.
   Fact: Scientists are trying to uncover the mysteries of aging. As far as is known today, no one substance will stop or prevent aging.

5. Honey can be tolerated in the diet of a person with diabetes whereas granulated sugar cannot. Disagree.
   Fact: Honey is also a sugar that is broken down by the body into the same simple sugars as is granulated sugar. Therefore, it cannot replace table sugar for the diabetic. While honey does contain a few more nutrients than white sugar, these are not significant in the small amounts consumed.

6. The fluoride content in drinking water may cause mental retardation. Disagree.
   Fact: No relationship between fluoride in drinking water and mental retardation has been proved. Fluoride does help in preventing tooth decay and is also necessary for proper use of calcium by the body.

7. Organically grown fruits and vegetables have the same amounts and kinds of nutrients as those grown with chemical fertilizers. Agree.
   Fact: Trees and plants do not respond differently to different kinds of fertilizers. Plants need certain elements from the soil which they can receive directly from fertilizer or the organic material will break down to form the same chemicals. Either way the plant will have the nutrients it is supposed to contain or it will not grow.

8. There is no scientifically proven diet that can treat or cure arthritis. Agree.
   Fact: Rheumatoid arthritis is a long-term disease with no absolute cure, although modern medicines administered by a physician may bring relief. Arthritis sufferers spend more than $300 million each year on quick cure medicines and health foods that will not help.

9. A natural vitamin is more beneficial than a synthetic one. Disagree.
   Fact: The body does not differentiate between a natural vitamin and a synthetic vitamin.

10. All books on nutrition found at the local library or bookstore are accurate and reliable. Disagree.
    Fact: The U.S. Bill of Rights guarantees freedom of the press giving us the right to hear more than one viewpoint. Because of this, printed materials do not have to be accurate and may express only one person's view in such a way as to sell books. Many of the current nutrition books are not scientifically correct. Ask the dietitian working with your project or the extension home economist in your county for assistance in finding reliable nutrition information.

M-21

Method: Placemats with a game
Presented by: Site personnel/volunteer
Topic: Snacks

WORD SCRAMBLE GAME

GOAL

To provide information on making nutritious snack choices

APPROXIMATE TIME

10 minutes

MATERIALS NEEDED

- Placemats printed on colorful 11" x 14" paper, one per person
- Pencils

ACTIVITY

1. After the meal, ask the participants to unscramble the words on their placemats.
2. After 5 minutes, call time and read the correct answers. See who has the most correct answers. Give those individuals a suitable prize, e.g., small bag of raisins.
3. Ask if they can figure out the word that will classify or describe all of the words listed on the placemat. The word has to have six letters to fit the blank spaces at the top of the page. (Correct answer: S-N-A-C-K-S)
4. Discuss snacks with the group participating. Include the following points:
   - Snacks are extra foods eaten between regular meals.
   - Snacks need to be included when you are figuring calories and nutrients in the day's diet.
   - Snacks can count for or against you nutritionally.
     - Snacks from the four food groups are nutritious.
     - Snacks with empty calories, such as candy bars and soda pop, only add weight and not nutrients to your

body. For people who are restricting their calories in order to lose weight, eating these snack foods means they will short themselves on nutrients.

- For some underweight people, snacks keep them from being hungry at meal time. They may eat less at meals when the food is more likely to be nutritious.

5. Have the participants star the snacks on their placemats that can count for them instead of against them.

TIPS FOR THE LEADER

- Placemats may be made on other nutrition topics. Nine placemats and lessons for children that could be adapted for adults have been developed by the North Dakota Cooperative Extension Service. Single copies are available free and may be reproduced giving credit.

- Remember that older people see warm colors such as yellows, oranges and reds better than the cool colors of blues, greens and violets. Large, bold letters with good background contrast will make the placemats easier to read. (See "Hints for Designing and Using Handouts," Appendix C).

RESOURCE

North Dakota Cooperative Extension Service. 1973-1975. Nutrition placemats. EFNEP Coordinator, Cooperative Extension Service, North Dakota State University, Fargo, ND 58102. Single copies free.

UNSCRAMBLE THE FOOD WORDS BELOW :-

SHEECE _____

DOSA OPP _____

TAPOOT SCHPI _____

CIE MRCEA _____

YANOD _____

KILM _____

GEANRO _____

SOUTND _____

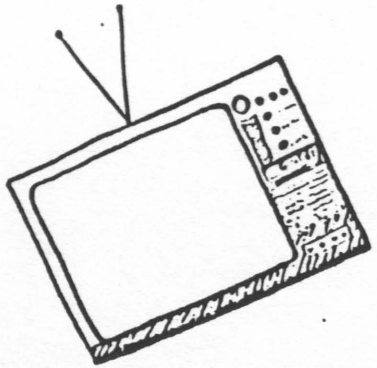
EACK _____

GORUTY _____

AAAANB _____

SSIINRA _____

SHEAPUT _____



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ANSWER SHEET FOR THE WORD SCRAMBLE PLACEMAT

S N A C K S

• SHEECE	CHEESE
DOSA OPP	SODA POP
TAPOOT SCHPI	POTATO CHIPS
• CIE MRCEA	ICE CREAM
YANCD	CANDY
• KILM	MILK
• GEANRO	ORANGE
SOUTND	DONUTS
EACK	CAKE
• GORJTY	YOGURT
• AAANNB	BANANA
• SSIINRA	RAISINS
• SNEAPUT	PEANUTS

• NUTRITIOUS FOOD

M-22

Method: Self-learning display
Presented by: Site personnel/ volunteers
Topic: Iron

HOW'S YOUR IRON TODAY?

GOAL

To help participants evaluate their daily intake of iron from foods

APPROXIMATE TIME

5 minutes

MATERIALS NEEDED

- Poster or watercolor boards, heavy weight size 22" x 30"
- 3 library card pockets, size 3 1/2" x 4 1/2"
- 6 brown envelopes, size 6 1/2" x 9 1/2"
- 1 brown envelope at least 8 3/4" x 11 1/2"
- 1 roll contact plastic tape, 1 1/2" width
- Black broad felt-tipped pen for lettering and 1 set of 1 1/2" lettering stencils or self-adhesive plastic press-on letters.
- Several bright colored light-weight poster boards from which to cut circular pieces (heavy-weight construction paper may be substituted.)
- Rubber cement.

PREPARATION

(See sketch of iron nutrient board, Attachment A)

1. Print top poster. The copy is on Attachment A. Add some colored pictures of iron-rich foods from magazines.
2. Cut the six 6 1/2" x 9 1/2" brown envelopes as shown on the pattern diagram, Attachment B. Put the number of iron units on the upper portion of the pocket using

either the press-on numbers or print with a marker. Number them 5, 10, 15, 45, 50, and 75, respectively.

3. Cut the three library card pockets as shown on Attachment C. Number them 20, 25, 30.

4. On the other poster board, glue the pockets with the cut side up so that the circular pieces may be inserted. See Attachment A for correct order.

5. Glue or draw on the circular base, Attachment D.

6. Prepare the direction sheet (Attachment E) and place on the board.

7. Prepare the food lists for the pockets found on Attachment F. Glue them to the lower half of the correct pockets as shown on Attachment C.

8. Tape the two large posters together securely so that the top poster may lean against a wall. Tape front and back so that posters may be folded for transport to other sites.

9. Use the circular pattern pieces in Attachment G. Cut from light-weight poster board the iron units* from 5 to 75. Cut at least eight pieces for units 5, 10, and 15. Cut at least two circular pieces for iron units 20, 30, and 45 and one of the others. Label each piece with the correct number of iron units.

10. On the back of poster board #1, glue or tape the large brown envelope for storage of circular pieces during transport. When the board is in use, insert the circular pieces in the corresponding pockets.

11. If desired, punch holes in posters and attach handle (heavy-weight string, yarn, leather, wire or other suitable material).

---

*An iron unit is the amount of iron in a food in relation to the Recommended Dietary Allowance (RDA) for older people (see Attachment H for sample calculations) expressed as a percentage.

12. You may wish to decorate the top board with magazine pictures of iron-rich foods.

ACTIVITY

The iron nutrient board is set up as a display and participants use it to determine the iron in their daily diet. As an introduction to this activity, a professional educator may be asked to have a 10-minute discussion of the role of iron in the body. The leader could encourage a few participants at a time to use the display by using it himself and explaining what he is doing.

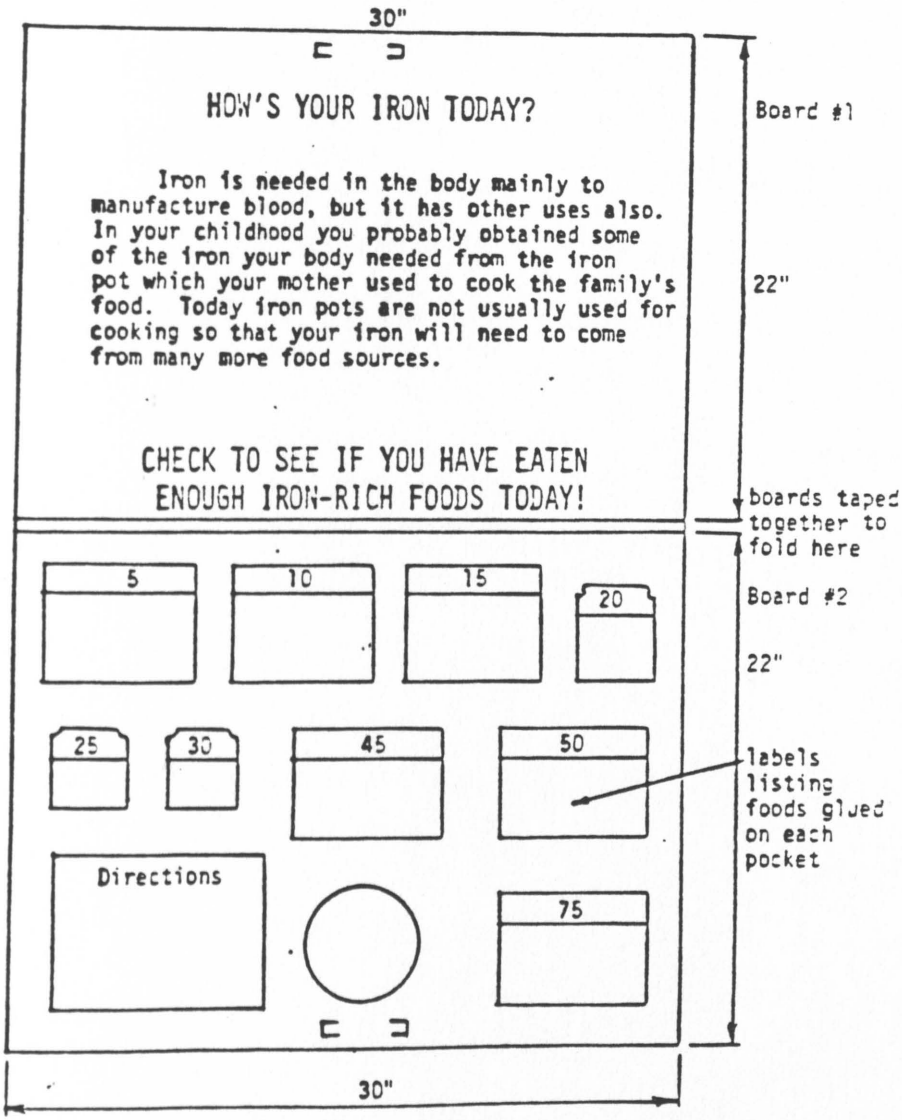
TIPS FOR THE LEADER

- One or more volunteers or participants can be trained to use the board so that they may assist others.
- If volunteers help to construct the display, they will be eager to see it used.
- The activity may be easily adapted by a professional educator to other nutrients which are low in the diet of older people. (See Attachment H.)

M-22, page 4

Attachment A

Diagram for Iron Nutrient Board



To Use: Lean Board #1 against a wall. (May be taped to hold securely.) Board #2 should rest on table surface.
⊏ ⊐ indicates holes for handles.

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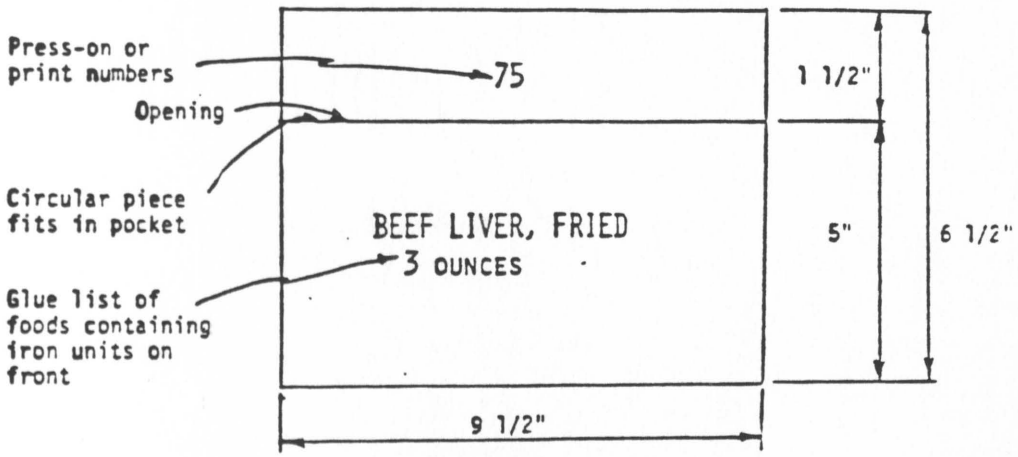
Attachment B

Pattern for Brown Envelopes
(6 1/2" x 9 1/2")



1. Cut 4 1/2" off the top of the six brown envelopes.

2. Then cut away 1 1/2" of only the front portion of the envelope, leaving the back of the envelope intact. Use these six envelopes for the 5, 10, 15, 45, 50 and 75 iron unit foods.

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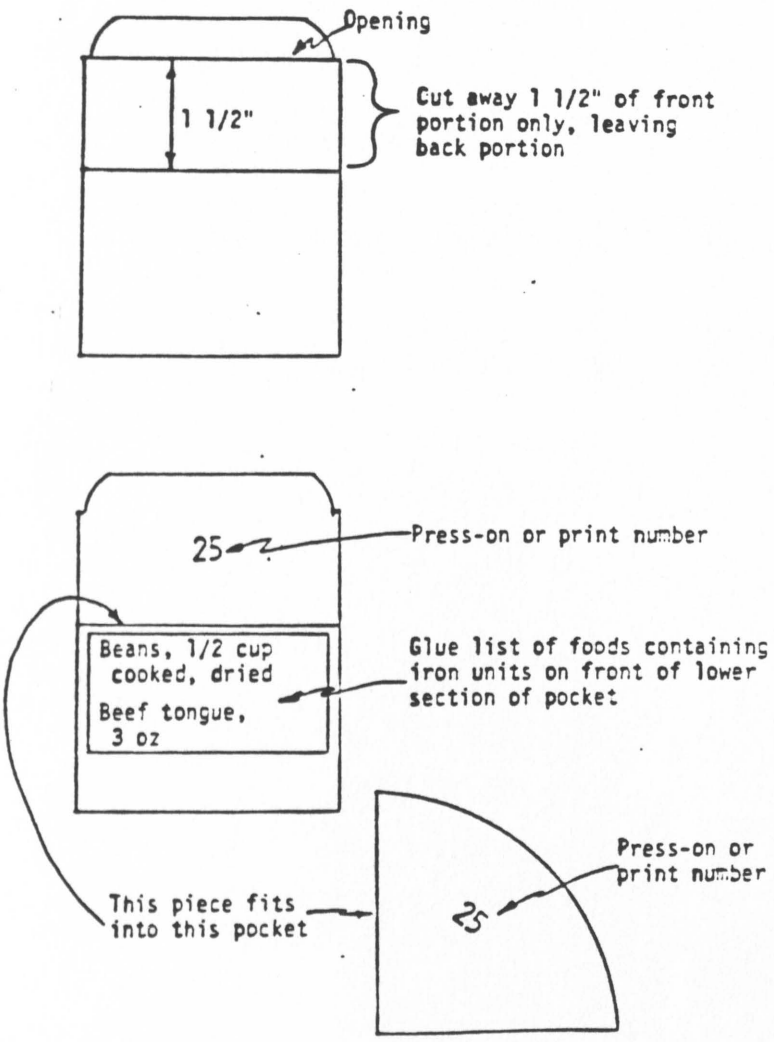
Attachment C

Diagram of Completed Library Card Pockets



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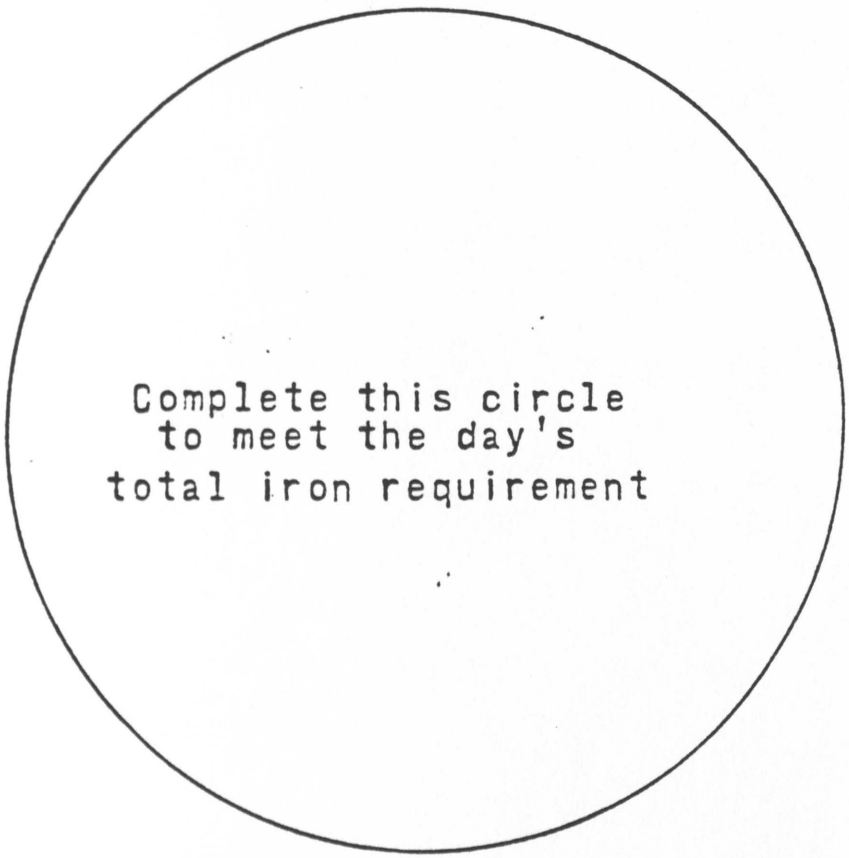
Attachment D

CIRCULAR BASE



DIRECTIONS

To see how many more iron-rich foods you need to eat today ---

1. Find the names of the foods you have eaten on the pockets.
2. Remove the pie-shaped pieces from these pockets. (The numbers show the iron units in the foods.)
3. Fit the pieces into the circle.
4. If the circle is complete, you have eaten enough iron-rich foods for today.
5. If the circle is incomplete, find foods you could add. Try the pieces for these foods to see if the circle is completed.

M-23

Method: Slides and discussion
Presented by: Paraprofessional
Topic: Shopping techniques

SHOPPING KNOW-HOW

GOAL

To provide information on ways to save money at the grocery store

APPROXIMATE TIME

20 minutes
10 for the slides and 10 for questions

MATERIALS NEEDED

- Slides and script, "Shopping Know-How"
- Slide projector
- Screen or clear, light-colored wall
- Optional: Extension cord
  Spare light bulb for the projector
  Flashlight to see the script if the room gets too dark
  Microphone

PREPARATION

- Preview the slides two or three times, becoming very familiar with them and the script and the questions they may raise.
- Think of how you want to introduce it for your group, new terms that will need defining and possible discussion questions.

ACTIVITY

1. Introduce the slides and suggest thinking of ways to save money at the grocery store that may not be included in the series so these ideas can be shared with the group.
2. Show the slides and explain them either by reading the script or ad libbing appropriate comments.
3. Ask for questions that the slides may have raised and discuss other ideas the participants have for saving food costs.

TIPS FOR THE LEADER

- Narrating the slides without the use of the script may add to the presentation. However, be careful not to lengthen it too much. If it seems long, you may wish to take some of the slides out of the series and use them on two different days.

- Make certain you can be heard above the noise of the projector. (See Appendix B, "Showing Slides and Films," for other suggestions.)

- Questions raised may give you good clues for future programs.

- You may wish to develop your own slide sets on topics of interest to your participants. It is usually better to write the script first, then decide on the pictures needed, and then finally send a volunteer out with a camera to take the pictures. By developing your own slide sets you can be sure that older adults are featured in the pictures. With careful preplanning, the cost is not prohibitive.

- Scripts may be taped in order to free you from reading during the presentation. To indicate when to change slides, a bell such as used in stores to get the clerk's attention, may be used as the script is being read. Halloween "clickers" also may be used for this purpose. With an inexpensive slide viewer and tape recorder, these can be used for home-bound participants.

RESOURCE

- "Shopping Know-How" slide series may be ordered from Program in Gerontology, School of Home Economics, Oregon State University, Corvallis, Oregon 97331. Cost is $15.00

RESOURCE

- "Shopping Know-How" slide series may be ordered from the Nutrition Program Training Center, School of Home Economics, Oregon State University, Corvallis, Oregon 97331. Price (including postage): $18.50 (subject to change). Allow 2-3 weeks for delivery. Prepaid orders only.

SHOPPING KNOW-HOW

	Slides
1. It pays to be smart when you shop. These days when food costs are so high, it's especially important for all of us to make the best choices--to get the most nutritious food for the least money.	1. Title Slide
2. You're invited to come along with Mrs. Lulu Post as she follows some suggestions to help her stretch her food dollars.	2. Starting out in store
3. Let's begin with Mrs. Post at home planning her shopping. She has transportation to the store only once a week so she likes to take a few quiet moments to think about the foods she's going to eat during the week.	3. Sitting at table
4. The first thing to do is to check the newspaper for sales. She tries to plan her meals around the best buys of the week. But she also knows that you can't make a list that is hit or miss in nutrition.	4. Newspaper ad
5. Following the basic four food groups is the best way to plan.	5. Basic four

Have foods from all four food groups every day: Fruits and vegetables--the breads and cereals--the milk group--the meat group.

6. Check what's at home as you plan your shopping list. — 6. Checking refrigerator

7. Check the refrigerator and cupboard to see if a food you have at home can be combined with an ingredient you might buy at the store to make another meal. — 7. Checking cupboard

8. Watch that coupon come-on! — 8. Coupons on ad

Food bought with coupons is only a bargain if it is something you like and will use. It's no bargain if it is too costly anyway, and if you don't use it.

9. Plan to use your food stamps--and wisely--if you have them. — 9. Food Stamp list

10. Mrs. Post plans her shopping to give herself plenty of time to shop. — 10. At table with clock

She takes the time to make a good list at home, and then tries to shop in the early afternoon before stores

are crowded and busy. She also shops after a meal or snack. Everything looks good when you're hungry.

11. <u>When she arrives at the store, she decides on meats first</u>. — 11. At meat counter

Mrs. Post plans her meals around meats that are on sale. Since meats are the most expensive part of each meal, they should be selected carefully in order to save money. You may want to pick them up last so they will be refrigerated as long as possible.

12. <u>Cut up your own food at home if possible</u>. — 12. Whole and cut up chicken

Extra money is charged each time a food is cut up and sold in smaller pieces. An example is the price of a whole chicken at 58¢ a pound and thighs and legs selling for 88¢ a pound. Other examples are grating or slicing your own cheese, slicing part of a ham, or cutting up a chuck roast (when it is on sale) for stew meat.

13. Buy meat on a cost per serving basis, rather than by cost per pound.

    For instance, one pound of ground beef will give four servings per pound. One pound of short ribs will give only 1 or 2 servings per pound. This is a good way of figuring the cost of the actual meat you are getting.

13. Ground beef and short ribs

14. Don't buy fancy packaging (especially plastic) and special gimmicks.

    Mustard with a dispenser lid may cost as much as 11¢ more than a regular jar of the same size.

14. Jars of mustard

15. Unit pricing in some stores helps to know actual costs of foods per pound. Mrs. Post found mustard with the dispenser costs 84¢/pound.

15. Dispenser jar

16. Jars without the dispenser cost only 55.2¢/pound.

16. Regular jar

17. Check your list as a reminder to avoid impulse buying.

    You want to be open to good buys, but if you buy foods you don't need, you won't be ahead!

17. Checking list

Read the label to find out exactly what the ingredients are. They are listed in order, by weight, with the highest weight first.

21. Mrs. Post found that labels also show the weight or size of the item, or number of servings, and the percentage of nutrients or the U.S. Recommended Daily Allowance from each serving. 21. Can of peaches

22. Store brands usually mean savings. The quality may be little different from name brands. They are certainly worth trying when costs are important. 22. Canned soup

23. Foods in season are almost always cheaper. There's a big difference between winter squash at 10¢ a pound and summer squash at 48¢. 23. Squash

24. Look for items reduced for quick sale. These items could be a cart full of assorted items, or lightly bruised produce such as bananas, or darkened meats. Mrs. Post prefers day-old bread. 24. Leftover breads

25. She also found a roast that was reduced from $4.36 to $3.89, a savings of 47¢. Know the policy of your store about reducing meat prices in order not to buy meat which actually may be spoiling rather than just dark colored. Reduced meats should be used or frozen the day you buy them.

25. Reduced meats

26. Be cautious about specials--not all of them are good buys.

When you see a large display of a food on special, check the regular shelves for an equally good brand which sometimes may be lower in price than the special. For instance, a one-quart bottle of orange juice was on "special for 49¢." Frozen orange juice equaling 1 1/2 quarts after water is added also costs 49¢. One way to look at it is that when you buy the frozen juice, you're getting one pint of juice free.

26. Orange juice

27. Don't rush to buy newly introduced foods.

27. Spoon candy

See if they stay on the shelf. See what neighbors and friends think of them. If reports continue to be good, it may be worth trying the product. Often a new product is in a dazzling package. And many are convenience foods at luxury prices.

28. Buy plain foods rather than higher cost versions with added ingredients. 28. Rice

For example, herb flavored rices, and frozen vegetables with cream sauces, cereals with added vitamins or sugar may cost as much as 30¢ more per box.

29. Small packages usually cost more than large packages. 29. Tomato juice

But if food spoils before it is used, the smaller amount may be really the best buy. Mrs. Post discovered that small cans of tomato juice cost 80¢ per quart, whereas a large can figured out to be 30¢ per quart.

30. Soap or supplies which will not deteriorate are wisely purchased in as large a container as you can 30. Soap

handle and store. A 20 oz. box of soap costs $2.98. Figuring the cost per pound makes the small box 37¢ per pound and the large box 24¢ per pound.

31. Check on the checker. — 31. Checking out

Make sure you are being charged the correct price for the items bought. Refer to your grocery list with the sale prices; checkers may not always know all the sale prices and charge you the regular price by mistake.

32. Store purchases promptly and properly when you come home. — 32. Storing in refrigerator

Put the frozen foods in the freezer immediately, refrigerate perishable foods quickly. Be sure foods are properly wrapped for freezer and refrigerator storage.

Now, Mrs. Post is all ready for a week of nutritious meals.

33. Credits. — 33. Credits

M-23b

Method: Shopping Trip
Presented by: Volunteer
Topic: Shopping Techniques

Actual shopping trip to practice shopping techniques. Experimental group of 30 was divided into two groups of 15.

M-24

Method: Cooking Experience
Presented by: Participants
Topic: Meal Preparation

Actual planning, shopping and preparation of a nutritious meal.

Appendix C: Instruments Utilized

1. Ross-Thomas Nutrition Knowledge Test
2. Meal Planning Skills Questionnaire

ROSS-THOMAS NUTRITION KNOWLEDGE TEST

1. A banana is higher in calories than many desserts.
   a. true
   b. false

2. Potatoes are a moderate source of vitamin c and iron.
   a. true
   b. false

3. Broccoli is low in calories.
   a. true
   b. false

4. Vitamn C helps you to see in dim lights.
   a. true
   b. false

5. Calcium helps to keep your bones strong.
   a. true
   b. false

6. The basic four food groups are: Milk, meat, juice, and cereal.
   a. true
   b. false

7. A daily dosage of vitamin C will prevent the common cold.
   a. true
   b. false

8. Eating breakfast is important even though you get a nutritious lunch.
   a. true
   b. false

9. Fad reducing diets help people people lose fat.
   a. true
   b. false

10. Ice cream is a nutritious snack.
    a. true
    b. false

11. Fiber is that part of the food that passes right through the digestive system and into the stool.
    a. true
    b. false

12. A raw vegetable is a nutritious snack.
    a. true
    b. false

13. Bran has a high fiber content.
    a. true
    b. false

14. A daily dosage of vitamin supplements will help cure arthritis.
    a. true
    b. false

15. Cake is a nutritious snack.
    a. true
    b. false

16. Fiber is present in whole grains, beans, peas, fruits and vegetables.
    a. true
    b. false

17. Peanut butter is a good source of protein.
    a. true
    b. false

18. Beef is a good source of iron.
    a. true
    b. false

ROSS-THOMAS NUTRITION KNOWLEDGE TEST

19. Iodine is needed for the thyroid gland to function properly.
    a. true
    b. false

20. Iodized table salt can be used to meet the body's need for iodine.
    a. true
    b. false

21. Liver is a good source of iron.
    a. true
    b. false

22. It is not important to read the nutrition labels when shopping
    a. true
    b. false

23. Food can be seasoned without salt.
    a. true
    b. false

24. Broiled chicken is low in fat.
    a. true
    b. false

25. It is cheaper to buy chicken already cut than whole.
    a. true
    b. false

26 To help prevent heart attacks, smoke only after meals.
    a. true
    b. false

27. Fried meats will decrease the body's intake of fats.
    a. true
    b. false

28. Overweight is related to heart attacks.
    a. true
    b. false

29. Store brand food rather than name brands usually save money.
    a. true
    b. false.

30. Too much salt cause high blood pressure in some people.
    a. true
    b. false

31. Exercise may help to prevent heart attacks.
    a. true
    b. false

32. Catsup has a high salt content.
    a. true
    b. false

33. Eating too much fat may lead to heart disease.
    a. true
    b. false

34. Pork is a good source of riboflavin.
    a. true
    b. false

35. Potassium helps to regulate the heart beat.
    a. true
    b. false

ROSS-THOMAS NUTRITION KNOWLEDGE TEST

36. Senior Citizens need less protein than young adults.
    a. true
    b. false

37. Riboflavin is good for the body's digestion.
    a. true
    b. false

38. Poultry is a good source of riboflavin.
    a. true
    b. false

39. Seafood is a good source of iodine.
    a. true
    b. false

40. Raisins may be used as a fruit serving.
    a. true
    b. false

41. Each person should drink 4 to 6 glasses of water daily.
    a. true
    b. false

42. A hamburger can include the basic 4 food groups.
    a. true
    b. false

MEAL PLANNING SKILLS QUESTIONNAIRE

1. a. oven - roasted potatoes and creamed spinach or

   b. creamed potatoes and creamed spinach.

2. a. oven - roasted potatoes, sliced beets, fruit cocktail or

   b. diced potatoes, diced beets, fruit cocktail.

3. a. casserole, green string beans, lettuce wedge with french dressing or

   b. casserole, mixed vegetables, combination salad.

4. a. tomato juice cocktail, green salad, banana cream pie or

   b. fruit cup, banana nut salad, banana cream pie.

5. a. creamed eggs, green peas, fresh vegetable salad or

   b. creamed eggs, mashed potatoes, cottage cheese salad.

6. a. macaroni and stewed tomatoes or

   b. potatoes and macaroni.

7. a. noodles and asparagus or

   b. noodles and corn.

8. a. sweet potatoes and steamed cabbage or

   b. sweet potatoes and rice.

9. a. sliced white meat, broccoli, corn or

   b. sliced white meat, rice, steamed cauliflower.

10. a. spaghetti with tomato sauce, summer squash, chocolate cup cake or

    b. spaghetti with tomoto sauce, harvard beets, fruited raspberry gelatin dessert.

11. a. potatoes and carrots or

    b. potatoes and cornbread

12. a. blackeye peas, pork chop and milk or

    b. blackeye peas, rolls and milk.

13. a. chicken, pinto beans and milk or

    b. chicken, spinach and milk.

14. a. cereal, milk and toast or

    b. cereal, milk and fruit.

15. a. eggs, chili and tortillas or

    b. eggs, tomatoes and tortillas.

Appendix D: Raw Data Collected From Instruments

1. Data Collected From the Ross-Thomas Nutrition Knowledge Test

2. Data Collected From the Meal Planning Skills Questionnaire

3. Data Collected From the Meal Planning-Preparation Experience

4. Data and Reliability Correlations From the Ross-Thomas Nutrition Knowledge Test

5. Data and Reliability Correlations From the Meal Planning Skills Questionnaire

Ross-Thomas Nutrition Knowledge Test
Experimental Group

Participant	Pre-Score	Post-Score
1	20	40
2	19	39
3	20	38
4	26	40
5	15	38
6	17	39
7	25	40
8	20	38
9	18	39
10	12	38
11	25	40
12	17	39
13	14	38
14	18	42
15	14	38
16	26	42
17	26	39
18	20	41
19	20	38
20	17	38
21	22	38
22	26	40
23	18	38
24	16	39
25	24	40
26	16	39
27	26	41
28	15	39
29	16	40
30	25	41

Ross-Thomas Nutrition Knowledge Test
Control Group

Participant	Pre-Score	Post-Score
1	18	18
2	20	18
3	19	21
4	19	20
5	16	17
6	13	15
7	22	25
8	27	26
9	26	27
10	15	16
11	18	18
12	28	27
13	20	21
14	16	19
15	15	17
16	25	22
17	18	16
18	26	21
19	16	17
20	14	15
21	26	23
22	17	18
23	18	20
24	20	21
25	21	19
26	26	24
27	17	18
28	26	22
29	16	19
30	17	16

Meal Planning Skills Questionnaire
Experimental Group

Participant	Pre-Score	Post-Score
1	7	15
2	9	12
3	7	12
4	6	13
5	9	12
6	8	12
7	9	13
8	7	13
9	7	13
10	7	13
11	9	13
12	8	13
13	8	12
14	9	15
15	6	13
16	8	13
17	9	15
18	9	15
19	8	15
20	8	13
21	9	13
22	5	15
23	6	15
24	7	13
25	9	15
26	7	13
27	8	14
28	6	13
29	7	13
30	9	12

Meal Planning Skills Questionnaire
Control Group

Participant	Pre-Score	Post-Score
1	6	5
2	9	8
3	6	7
4	7	7
5	5	6
6	6	6
7	8	9
8	9	8
9	7	5
10	6	8
11	7	8
12	8	7
13	7	7
14	6	8
15	6	6
16	8	9
17	7	7
18	9	8
19	7	5
20	8	10
21	9	7
22	8	9
23	8	6
24	7	8
25	8	9
26	9	10
27	8	7
28	8	10
29	6	8
30	8	5

Meal Planning Preparation Experience
Experimental Group

Participant	Post-Score
1	4
2	4
3	4
4	4
5	4
6	4
7	4
8	4
9	4
10	4
11	4
12	4
13	4
14	4
15	3
16	4
17	4
18	4
19	4
20	4
21	4
22	4
23	4
24	4
25	4
26	4
27	4
28	4
29	4
30	4

Meal Planning Preparation Experience
Control Group

Participant	Post-Score
1	3
2	3
3	3
4	3
5	3
6	2
7	3
8	4
9	4
10	2
11	3
12	4
13	3
14	2
15	3
16	3
17	3
18	3
19	3
20	2
21	4
22	2
23	3
24	3
25	3
26	3
27	3
28	3
29	3
30	3

Ross-Thomas Nutrition Knowledge Test
(Data and Reliability Correlations)

Participant	Odd-Score	Even-Score
1	15	16
2	18	17
3	16	18
4	20	20
5	18	20
6	17	16
7	15	16
8	19	18
9	18	19
10	19	21
11	16	14
12	20	18
	211	213

Split-Half Reliability Correlation

Mean	17.58	17.75
Standard Deviation	1.71	1.96

$$r_{oe} = \frac{\Sigma(X_O - \bar{X}_O)(X_e - \bar{X}_e)}{N(SD_O)(SD_e)}$$

$$r_{oe} = \frac{27.18}{12(1.71)(1.96)} = \frac{27.18}{40.22} = .68$$

Spearman-Brown Reliability Correlation

$$r_{tt} = \frac{2r_{\frac{1}{2}\frac{1}{2}}}{1 + r_{\frac{1}{2}\frac{1}{2}}}$$

$$r_{tt} = \frac{2(.68)}{1 + .68} = \frac{1.36}{1.68} = .81$$

Meal Planning Skills Questionnaire
(Data and Reliability Correlations)

Participant	Odd-Score	Even-Score
1	5	6
2	6	6
3	6	6
4	4	4
5	5	5
6	5	6
7	7	6
8	4	6
9	6	6
10	5	6
11	4	6
12	6	7
	63	70

Split-Half Reliability Correlation

	Odd-Score	Even-Score
Mean	5.25	5.83
Standard Deviation	.92	.68

$$r_{oe} = \frac{\Sigma(X_o - \bar{X}_o)(X_e - \bar{X}_e)}{N(SD_o)(SD_e)}$$

$$r_{oe} = \frac{2.78}{12(.92)(.68)} = \frac{2.78}{7.51} = .37$$

Spearman-Brown Reliability Correlation

$$r_{tt} = \frac{2r_{\frac{1}{2}\frac{1}{2}}}{1 + r_{\frac{1}{2}\frac{1}{2}}}$$

$$r_{tt} = \frac{2(.37)}{1 + .37} = \frac{.74}{1.37} = .54$$

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