THE LONG-TERM EFFECT OF THE EXPANDED FOOD AND NUTRITION EDUCATION PROGRAM ON THE DIETARY PRACTICES OF LOW-INCOME HOMEMAKERS

By

JANET C. WILSON MONTGOMERY

Bachelor of Science

Oklahoma State University

Stillwater, Oklahoma

1961

Submitted to the Faculty of the Graduate College
of the Oklahoma State University
in partial fulfillment of the requirements
for the Degree of
MASTER OF SCIENCE
July, 1983

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Thesis Approved:

Thesis Adviser

Dean of the Graduate College

ACKNOWLEDGMENTS

The author desires to express appreciation to the many people who have contributed encouragement, guidance and support throughout her study.

First, my sincere thanks to Dr. Bernice Kopel for her invaluable assistance in helping me complete this research project. Her guidance, wisdom, continual patience and encouragement made the difference in my graduate program. To Dr. Marguerite Scruggs for serving on my thesis committee and offering so many constructive ideas. To Dr. Esther Winterfeldt for serving on my thesis committee and for her many years of friendship and encouragement; she has been indispensable in my career development.

My warm appreciation to Dr. Beverly Crabtree and Dr. Peggy Meszaros who, as I looked for examples of people to follow in the home economics profession, I would always single out.

My special love to my brother Pat Wilson, who really helped me climb my mountain. And also to my office staff, especially the EFNEP Nutrition Aides and Jackie Clay, EFNEP Program Assistant, for all the hard work they contributed as I pursued my graduate study. I must also say "thank you" to Mr. Billy Parham, who constantly reminded me of the obligation I had to myself to finish my degree and never stopped believing in me; for this I am appreciative.

In conclusion, my greatest love and appreciation must go to my

husband, Roy, and my three daughters, Kim, Christy, and Dee Ann. Their patience, understanding, love and support throughout the long, endless hours it took to put my graduate plans together made life worth living, even while writing a thesis.

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CHAPTER I

INTRODUCTION

In the spring of 1968, a publication entitled Hunger, USA, was released. This publication documented the plight of millions of Americans who had incomes which were inadequate to supply the basic necessities of life and the inadequacy of government food and assistance programs to remedy the situation (Citizen's Board of Inquiry Into Hunger and Malnutrition, 1968). The release of this report stimulated other investigations into the nutritional quality of Americans' diets, all of which indicated that many persons, because of lack of knowledge and their economic situations, needed help. Other research has supported the belief that diet was an important factor in the physical and mental functioning of individuals (Mayer, 1975).

Early in November, 1968, the Federal Extension Service announced that $10 million of Federal funds had been made available to expand Extension Home Economics education programs with low-income families with a primary emphasis on foods and nutrition (Food for us All, 1969). Basically, the funds were to be used by County Cooperative Extension Services to employ "Nutrition Program Aides" who were to be trained to help low-income families improve the nutritional quality and adequacy of their diets through education. The program aides were to be hired from the low-income areas and were to be persons who had an understanding of the problems that low-income families face. The program aides

also must have the ability to work with and have empathy for the poor in their indigenous areas. It was understood that, although the ultimate goal of the effort was to improve nutritional adequacy, other aspects of family living must also be considered. Sometimes other needs must be met and problems solved before the client homemaker would be able to concentrate on the food needs of the family.

Homemakers were to be enrolled by the aides and involved in learning experiences designed to increase the homemakers' knowledge of nutrition, as well as their dietary levels. These learning experiences would be based on the homemaker's interest, ability, and assessed dietary needs.

The Cooperative Extension Service implemented its nutrition education program in a number of counties in each of the 50 states in the United States beginning in January, 1969. Each state received its share of the money in proportion to the number of low-income families within the state. Nationally, the program was to become known as the "Expanded Food and Nutrition Education Program" (Science and Education Administration . . . Extension, 1979).

Oklahoma began its Expanded Food and Nutrition Education Program (EFNEP) in January, 1969, with 11 counties piloting the program (Manning, 1978). At the present time, 75 Nutrition Program Aides in 10 counties are teaching an average of 1789 families and 574 youth each month (Corey, 1983).

Significance of the Study

Since January, 1969, 48,956 low-income families and 121,681 low-income youth in Oklahoma have gained knowledge and skills needed to

select a good diet at low cost. Data showed that a larger percentage of homemakers eat more adequate diets after instruction from program aides than they did before enrolling in the EFNEP program (Corey, 1983).

According to a 1976 report from the Oklahoma State University Cooperative Extension Service, only 11 percent of the homemakers reached by the EFNEP program had eaten what was considered a minimum adequate diet before instruction. After six months, the number increased to 17 percent. After one year of participation in the EFNEP program, the percentage of adequate diets increased to 23 percent, and at the end of two years' exposure to the program, 38 percent of the homemakers enrolled had adequate diets (Better Diets for Oklahomans, 1976).

There were sufficient data available that indicated the impact of the program aide in bringing about an improvement in nutrition attitude, and behavior for the EFNEP homemaker during the period of time enrolled in the Expanded Food and Nutrition Education Program. However, very little data have been recorded that establish the long-term food behavior brought by the Expanded Food and Nutrition Education Program after the homemaker had been progressed out of the program. A crucial unmet need in the continuing progress of nutrition education for low-income families in Oklahoma led to the purpose of this study, which was to determine the long-term effect of the Expanded Food and Nutrition Education Program on the adequacy of the diet of the homemaker.

Purpose and Objectives

The purpose of this study was to evaluate the nutritional adequacy of the diets of homemakers who had progressed out of the EFNEP

program three or more years to determine the effectiveness of the EFNEP program in producing sustained dietary levels for homemakers.

The following objectives guided this study:

1. To determine the adequacy of the diets of a sample number of low-income homemakers who have progressed out of the EFNEP program for three or more years by evaluating a 24-hour dietary recall of each homemaker on the basis of the Four Food Groups.

2. To compare the dietary recall score taken for the homemaker before progressing out of the EFNEP program and dietary recall score taken three or more years later.

3. To determine the association between the adequacy of the homemaker's diet and background characteristics, such as:

    a. income level
    b. educational background of the homemaker
    c. number of children in the home
    d. ethnic background of homemaker
    e. whether or not the family has a home garden

4. To determine the sources of nutrition information used by the homemaker since progressing out of the EFNEP program.

Hypotheses

For this study the following null hypotheses were tested:

H_1: There will be no significant association between adequacy of dietary intake and income level of the family.

H_2: There will be no significant association between adequacy of dietary intake and educational background of the homemaker.

H_3: There will be no significant association between adequacy of dietary intake and number of children in the home.

H_4: There will be no significant association between adequacy of dietary intake and ethnic background of the homemaker.

H_5: There will be no significant association between adequacy of dietary intake and whether the family has a home garden.

Assumptions

The plan for this study was based on the following assumptions:

1. Homemakers who have participated in the EFNEP program have a significantly better understanding of nutrition.

2. Homemakers who have participated in the EFNEP program will be more aware of the importance of good eating habits for all family members.

3. Homemakers who have participated in the EFNEP program will continue to seek out nutrition information that will improve their understanding of nutrition.

4. The nutrition aides' technique of asking questions and recording information for the current 24-hour dietary recall was consistent with the method used on the 24-hour dietary recall taken three or more years earlier.

5. Questions asked on the special questionnaire were worded in such a manner that basic dietary habits of the family could be determined.

6. Homemakers in the sample provided reliable answers to the questions involved on the 24-hour dietary recall and questionnaire as asked by the aide.

Limitations

The following limitations were acknowledged by the researcher:

1. The 24-hour dietary recall used as the criterion for evaluating the dietary level of the sample homemakers in this study had definite limitations for evaluating the overall effectiveness of the EFNEP program.

2. Study is limited to a randomly selected group of homemakers who were progressed out of the EFNEP program in 1978.

3. Study is limited to EFNEP families in Choctaw County.

4. Data collected are limited to information identified

by USDA for Expanded Food and Nutrition Education Program in the United States.

Definition of Terms

The following definitions are given in order to clarify specific meanings for this study:

Adequate Diet - A diet meeting at least two-thirds of the requirements of all nutrients as prescribed by the 1974 Recommended Dietary Allowance according to height, weight, sex, and age (National Academy of Sciences, 1974). For this study, it is also defined as meeting required number of servings for each of the Four Food Groups.

Basic Four - A food plan constructed to meet nutrient needs, with the exception of calories, and is specifically adapted to common dietary practices of the American population (Pike and Brown, 1975, p. 898). The basic four plan consists of two servings of meat, two servings of milk, four servings of fruits and vegetables, and four servings of breads and cereals.

Benchmark Data - Data obtained just prior to the homemaker progressing out of the EFNEP program.

Day 1 - Assigned code given to the dietary recall information obtained from the homemaker just prior to progressing out of the EFNEP program.

Day 2 - Assigned code given to the dietary recall information obtained from the homemaker three or more years after progressing out of the EFNEP program.

Dietary Recall Score - A method of assimilating dietary recall information into a set of numerical scores (Munger and Jones, 1976).

EFNEP - Expanded Food and Nutrition Education Program funded by the United States Department of Agriculture.

EFNEP Homemaker - "The person most responsible for meeting the food and nutrition needs of family members" (Wang and Ephross, 1970, p. 3).

Long-Term - A period of three or more years after a homemaker has progressed out of the EFNEP program.

Low-Income Homemakers - Homemakers who have family income that falls below the poverty level established by Consumer Price Index and Community Service Administration Guidelines (Bosley, 1947).

Nutrition Education - The process by which beliefs, attitudes, environmental influences, and understanding about food lead to the practices that are scientifically sound, practical, and consistent with individual needs and available food resources (ADA, 1973, p. 429).

Nutrition Program Aides - Individuals employed as paraprofessionals with Cooperative Extension Service. They receive direction from professionals and are employed to assist and/or extend the efforts of Extension program professionals through nutrition education programs (U. S. Department of Agriculture, Home Economics Bulletin No. 100, 1976).

Progressed Out - Those homemakers who were dropped from the EFNEP program because they had already received maximum benefit the program was able to offer, those who left voluntarily, and those whose family had moved away.

Recommended Dietary Allowance (RDA) - Nutrients essential for maintenance of good nutrition in a healthy, normally active person (National Academy of Sciences, 1974, p. 1).

Twenty-four Hour Dietary Recall - Provides information about the different items of food and beverages consumed in a 24-hour period. Food and beverages can be categorized into the Basic Four Food Groups and expressed in terms of numbers of servings (Verma and Jones, 1973).

USDA - United States Department of Agriculture.

CHAPTER II

REVIEW OF LITERATURE

Introduction

Although the United States Department of Agriculture (USDA) has long been concerned with nutrition, the decision to enter a concentrated nutrition education program for low-income families through the Expanded Food and Nutrition Education Program (EFNEP) came about as a result of several studies. These studies supported the intense need for providing nutrition education to families in order to attempt to improve the state of hunger and poverty in the United States.

Nutritional Status Surveys

All the nutritional studies reviewed in this paper have shown definite trends in the decline of adequate nutritional intake over the years, and the important need for nutrition education programs. Food habits and attitudes were factors in evaluating the nutritional status of individuals. Even though most Americans may have money to buy nutritionally adequate food, studies showed they were not doing so.

Food consumption studies in this country extend back to the early days of the USDA. In 1894, Congress mandated USDA to undertake human nutrition investigations with results published in the 1899 Yearbook of Agriculture (Rizek, 1978).

Early studies were small-scale, intense investigations consisting of only a handful of respondents. Since the 1930s the USDA has conducted six food consumption surveys on a national scale: 1935-36, 1942, 1948, 1955, 1965-66, and 1977-78. In all six surveys, data were collected on the food consumption of the household unit. In the 1965-66 and 1977-78 surveys, data were also collected on food intake of individuals in the household (Rizek, 1978).

USDA Food Consumption Survey, 1955-1965

In 1955 and 1965, Food Consumption Surveys were designed to provide food recall information from a small sample representative of housekeeping households in the United States. A household was considered "housekeeping" if at least one person ate ten or more meals from home food supplies during the seven days preceding the interview. Food from all sources was considered, including purchased food, food from home gardens, food received as gifts, and federally donated food (Kelsay, 1969).

The 1955-1965 surveys showed that the diets of the families did not improve over the 10-year period. Rather, the diets declined in nutritional level. For a diet to be rated "good," the dietary allowance of two-thirds or more of the RDA requirements for protein, calcium, iron, vitamin A, thiamin, riboflavin, and ascorbic acid (vitamin C) must be met. About 20 percent of the diets in 1965 were rated "poor" compared with 15 percent in 1955. Poor diets were those which included two-thirds or less of the RDA for one or more nutrients. Over the 10-year period, meat was the only major food group where consumption increased. Consumption dropped in other food groups, including milk, vegetables, fruit, and bread. At the same time, the consumption of sugar and

sweets increased. This shift in food habits meant that fewer people met the RDA for calcium, vitamin A, ascorbic acid, iron, thiamin, and riboflavin in 1965 than in 1955 (Kelsay, 1969).

Kelsay (1969) reported:

> The adequacy of the diets in 1965 and how these diets were related to the economic factors of the families showed that 35 percent of the families in the lowest income groups (under $3,000) had diets rated "good," in contrast to 63 percent in the $10,000-and-over income group. In the high income groups, almost two out of every five families had diets that evidenced some nutritional deficiencies (p. 133).

The results of the 1965 survey documented that there was considerable lack of adequate dietary intake in the United States. This study further recommended that the United States Congress provide funds to develop nutrition education programs to assist in eradicating this problem (USDA, 1966).

USDA Food Consumption Survey, 1977-1978

The 1977-78 Nationwide Food Consumption Survey provided detailed information on the food consumption of households (at home) and the food intake of individuals (at home and away from home). The complete 1977-78 Food Consumption Survey contains a nationwide survey, a bridging survey, and five supplemental surveys. In 48 states and the District of Columbia, 15,000 households representing approximately 34,000 individuals, provided the population for the nationwide survey. Data for the "bridging" survey were collected by interviewing 1,500 households by the 1965-66 Food Consumption Survey procedures. This permitted evaluation of differences between the 1965-66 and 1977-78 surveys. Data for the five supplemental surveys were gathered by

interviewing (1) 1,200 households and all members in Alaska over a three-month period; (2) 1,200 households and all members in Hawaii over a three-month period; (3) 3,000 households and all members in Puerto Rico over a six-month period; (4) 5,000 households in 48 states and the District of Columbia where one or more members were 65 years old or older. Twenty-four hour dietary recalls were taken for all household members; and (5) 5,000 low-income households (Rizek, 1978).

Survey results indicated a 10 percent decrease in caloric intake from 1965 to 1977 (Pao, 1980). Cronin (1980) attributed the decrease in caloric levels to a decrease in the use of milk and dairy products, breads and cereals, fats and oils, and most foods high in sugar. The decline in food energy was not coupled with a decline in the level of vitamins or iron; only the level of calcium in food used decreased. Therefore, the food used by families in 1977 had a higher nutrient density than that used in 1965.

Several additional trends and patterns emerged from the 1977 data. In general, households at different income levels in 1977 used foods that were similar in nutrient content and used quantities of the various food groups that were more similar than in 1965. The lower levels of nutrients noted on previous surveys for low-income households were not apparent in the 1977 data (Cronin, 1980).

Hegsted (1979) stated:

> The food supply in the United States is now exceeding complex, and becomes more so all the time. Knowledge of food composition lags behind our need. Inadequacies in data base exist because there is no sure way to compare what people eat to what they say they eat. Additional efforts are required to improve our methodology before we can expect major improvements in the nutritional level of food consumed in the United States (p. 1).

Ten-State Nutrition Survey, 1967

In the fall of 1967, the Department of Health, Education and Welfare undertook a survey of ten states to identify the prevalence, magnitude, and distribution of malnutrition in the United States. Results of this survey indicated that a significant proportion of the population surveyed was malnourished or was at high risk of developing nutrition problems. Findings of the Ten-State Nutrition Survey showed incidence of malnutrition in increasing order from white persons to Spanish Americans to blacks. Within each income group surveyed, nutritional deficiencies were most often prevalent in the low-income areas of the population (Ten-State Nutrition Survey, 1972).

Foods containing vitamin A and iron were often not selected. The lack of iron-rich foods in the diets of those surveyed contributed to the widespread problem of iron deficiency anemia that was exposed in all age groups. Dietary protein intake was well above adequate levels. Adolescents between 10 and 16 years of age had a higher incidence of inadequate nutrition status than did members of the other age groups studied. Elderly people (over 60) showed an increase in nutrient deficiencies that was not restricted to race or economic status. It appeared that poor choices of food and money mismanagement were responsible for the inadequate diets among the elderly age group (Ten-State Nutrition Survey, 1972).

High incidence of obesity and dental cavities were related to dietary intakes among all age groups participating in the study. Black females had a higher incidence of obesity than did white females, but white males were more likely to be obese than were black men. Overall,

women were more obese than men (Ten-State Nutrition Survey, 1972).

Findings of this survey confirmed the strong need to design nutrition education programs that would assist all segments of the population, with special emphasis on the low-income segment, to gain new knowledge in nutrition and choice of foods (Ten-State Nutrition Survey, 1972).

White House Conference on Food, Nutrition, and Health, 1969

When the first White House Conference on Food, Nutrition, and Health convened in December, 1969, there were essentially three major food programs in operation: the Food-Commodity Program, the Food Stamp Program, and the School Lunch Program. While all three of these food programs were providing a very valuable service, none of them included a concentrated nutrition education program as an objective (Mayes, 1970).

The aim of the 1969 White House Conference was to evaluate the state of nutrition of the American people and to formulate the basis of a national policy. There were four principal areas of concern: food assistance for the poor, nutrition and health programs, the regulation of food production and supply, and nutrition education. Among the 4000 delegates at the White House Conference, there were poor persons, students, industrial and agriculture leaders, representatives from social and poverty organizations, food companies and consumer advocates, government officials including the President, academic and government nutritionists, and concerned citizens (Mayer, 1972).

Panels representing every aspect of food and nutrition were formed

at the conference. Almost every panel at the conference mentioned nutrition education in their recommendations. Section Four, Panel 3, Community Nutrition Teaching of the White House Conference expressed a deep concern for the need for nutrition education programs. The following recommendations were made by this committee:

> That nutrition education be carried out at all levels of education, government, industry, mass media, and family. The approaches may vary with income, age, education, and environmental conditions, but there will always be a need for nutrition.
>
> That if each individual in our society is going to effectively implement his right to and need for proper food, then he must be given the opportunity to know enough about food and nutrition to choose for himself those foods that will supply his nutritional needs throughout life (Community Nutrition Teaching, 1970, p. 33).

Effective Nutrition Education Programs

Policy makers concerned about results of nutritional surveys and information presented at the White House Conference on Food, Nutrition and Health began to recognize need for nutrition education programs.

> One of the most dramatic and embarrassing socio-economic problems rediscovered in this country in recent years is that of malnutrition, even starvation in some 'forgotten' segments of the population. The rural poor, in particular, were found to be suffering from a variety of food and nutrition deficiencies, some of which were clearly preventable. Consequently, food stamp programs were initiated and improved, welfare reforms were instituted in selected localities, and new ways of reaching the rural poor with health education programs were explored (Wang, Green, and Ephross, 1972, p. 6).

Recognizing the need for effective nutrition programs was only the beginning. People are creatures of habit, and most of their habits are formed early in life. The nutrition educator usually entered the picture after many habits and attitudes were formed. Therefore, developing a nutritional policy for a nutrition education program that was

effective and at the same time appealed to the public was a major challenge to nutrition educators.

White (1976, p. 54) stated, "In most cases adults generally pay more attention to nutrition information when they are frightened, threatened by hypertension, diabetes, or have a need to undertake a diet to correct obesity." Adults, then, must be motivated to learn before they can be taught.

Individuals, particularly adults, differed greatly in their readiness to learn. USDA recently reported that almost one-third of the women surveyed did not want any more nutrition information (Walker and Hill, 1975).

In the Pillsbury Baseline Study it was reported that in the majority of cases the mothers accepted the responsibility for their family's nutrition. Most of the mothers felt that they were doing a good job of feeding their families; however, less than 50 percent of the mothers could define a balanced diet (Bauman, 1974).

White (1976) gives six reasons why nutrition education is important:

> Nutrition education will equip one to make judicious food choices for health and wellbeing. Good nutrition is vital to the achievement of one's genetic potentials.
>
> A good knowledge of nutrition is essential for the maintenance of health, especially when food habits temporarily or permanently deteriorate--as in dieting, illness, old age and poverty, and when an educational base might fail, leading to 'faddish' experimentation.
>
> Food and nutrition education is necessary for saving money and avoiding waste. In essence, nutrition education relates scientific knowledge to the total strategy for survival.
>
> Nutrition education is a base for the evaluation of food and nutrition information, both good and bad. Nutrition education can be a great benefit to those in the lowest economic stratum. While not as important as financial

> resources, nutrition education can equip the person who finds himself economically deprived to make the most expeditious use of financial resources.
>
> Nutrition education is essential to reinforce or correct family teaching about food and nutrition (p. 54).

Careful examination of nutrition education in light of educational research can determine approaches which have the great potential for long-term application of nutrition knowledge. There needs to be constant encouragement for continued nutrition research.

In 1973, the Dairy Council of California developed a nutrition education program that included instructional materials for use in teaching a basic set of nutrition related skills to homemakers (Sullivan, 1976). In 1976, the Dairy Council program was evaluated by testing several pilot counties in California. Sullivan (1976) concluded from the test in the pilot counties that there were two factors that contributed heavily to the success of the program:

> The use of systematic development procedures which involve tryouts and data-based revisions of the program objectives and highly favorable learner attitudes are attained.
>
> The design of the program so that it teaches the desired information about nutrients and nutrient sources must be in the context of practical skills that can be applied on an every day basis (p. 118).

Expanded Food and Nutrition Education Program

The Expanded Food and Nutrition Education Program (EFNEP) was organized nationally through the Cooperative Extension Service of the land grant universities and funded by USDA beginning in 1968. The Cooperative Extension Service saw this new nutrition education program as an opportunity to provide leadership. It mobilized its network of rural and urban Extension workers in support of a national effort to

reach low-income families with nutrition education (Wang, Green, and Ephross, 1972).

When the Expanded Food and Nutrition Education Program was launched nationally in 1969, it had as its major charge to help families living in poverty or near-poverty, especially those with young children, to acquire knowledge, skills, and changes in behavior to achieve adequate diets providing normal nutrition (Leidenfrost, 1975).

Paraprofessionals

The Expanded Food and Nutrition Education Program uses paraprofessionals called nutrition aides in a categorical approach to effect change in dietary practices (Wang and Emphross, 1977). Paraprofessionals working in the EFNEP program across the United States are making sizable contributions toward nutrition education of the poor. If the changes in food consumption and knowledge that were recorded in the first indepth study of the EFNEP program by USDA continues at a similar rate in the future, the program will constitute a major contribution toward breaking the poverty cycle and opening a new way of life for large numbers of low-income hard-to-reach families (Impact of the EFNEP Program on Low-Income Families, USDA, 1972).

A study of the Expanded Food and Nutrition Education Program in Maryland demonstrated that it was possible to recruit, train, and place paraprofessionals in the field, whose backgrounds in some cases are not extremely different from the homemakers served in the EFNEP program, and bring about substantial upgrading of nutritional intake of low-income families (Wang and Emphross, 1971).

Wang and Emphross (1971) further found that nutrition aides in the

EFNEP program demonstrated a good capacity to learn, benefit from training and supervision, and to establish relationships with homemakers who are generally considered hard-to-reach, and to work with them effectively.

Dietary Assessment

Methods of evaluating dietary recall must be present in any nutrition education program to determine effectively the impact of the program on participants. The Expanded Food and Nutrition Education Program, since its inception in 1968, has used the 24-hour dietary recall expressed in the four food groups to evaluate the diets of homemakers visited by paraprofessional nutrition aides.

The 24-hour dietary recall as a dietary evaluation instrument has limited scope because of inherent problems in obtaining accurate dietary recall data and because the 24-hour dietary recall has been perceived more frequently as a teaching tool than as an evaluation mechanism (Bowering, Morrison, Lowenberg, and Tirado, 1976).

> The 24-hour food recall originated in the sphere of dietary research where the concern was with aggregate data for a community of subpopulation. Even in the research sphere, the validity of resultant data is the subject of much controversy. There is among experts, however, general agreement that the technique is the best cost-to-benefit tradeoff among available methods for measuring food intake in noninstitutional settings (Munger and Jones, 1976, p. 21).

It appears that the use of the 24-hour food recall provides paraprofessional nutrition aides a fairly simple dietary assessment that is an appropriate means of documenting the improvement in diets of EFNEP homemakers.

Summary

Since 1894, when Congress mandated USDA to investigate the food consumption habits of the American people, studies have documented the lack of adequate dietary intake in this country. More recent studies have recognized that adequacy of diets was related to the economic factors of the families. These studies further pointed out the need for developing nutrition education programs that would assist all segments of the population, with special emphasis on the low-income segment, to gain new knowledge in nutrition and choices of food.

In 1969, the Expanded Food and Nutrition Education Program was launched nationally by USDA through the Cooperative Extension Service. Paraprofessionals called nutrition aides were employed to help families living in poverty or near-poverty, especially those with small children, to acquire knowledge, skills, and changes in behavior to achieve adequate diets. Since this time, nutrition aides have demonstrated a good capacity to learn, benefit from training and supervision, and to establish relationships with low-income homemakers, who are generally considered hard-to-reach, and to work with them effectively. There are few studies that identify adequacy of the diet of homemakers after they have progressed out of the EFNEP program .

CHAPTER III

RESEARCH DESIGN

This study was designed to evaluate the nutritional adequacy of the diets of homemakers in Choctaw County, Oklahoma, who had progressed out of the Expanded Food and Nutrition Education program three or more years to determine the effectiveness of the EFNEP program in producing sustained dietary levels for homemakers (see Appendix A). The study was a descriptive survey design with the dietary levels of homemakers being the dependent variable.

Independent variables were responses on food behavior questionnaires obtained from the homemakers. A 24-Hour Dietary Recall was obtained from the homemakers who had progressed out of the EFNEP program three or more years. This dietary recall was compared to the last dietary recall completed just prior to the homemaker progressing out of the program.

The Four Food Group Guide was used as a measure of an adequate diet for this study. The Four Food Groups contain limitations; these limitations were best described by Gussie and Jones (1972):

> The pattern of 2-2-4-4 servings from the Four Food Groups used as a dietary evaluation will measure the diet and not the individual's nutritional status. It does, however, indicate the strengths and weakness of the individual's eating habits and serves as an objective record against which changes in diets can be measured. It is assumed that changes in eating habits bring about changes in nutritional status, thus the emphasis on daily food intake (p. 19).

Background characteristics of the homemaker, including income level, education, number of children in the home, ethnic origin, and whether or not the family has a home garden were examined to determine if there is any association between these homemaker characteristics and 24-hour dietary recall score. Sources of nutritional information used by the homemaker since progressing out of the EFNEP program were also examined.

Population

The target population for the Expanded Food and Nutrition Education Program in Choctaw County is the hard-to-reach rural low-income homemaker who is not motivated to seek educational help on his/her own. Special effort is made toward reaching homemakers with young children in the home, and who are responsible for planning and/or preparing the family's food.

The population of this study included all homemakers in Choctaw County who had been participants in the EFNEP program and had been progressed out of the program for three or more years. The majority of EFNEP homemakers making up the population of the program in Choctaw County were under 25 years of age. At the time of this study, 27 percent of the EFNEP homemakers had less than an eighth grade education. Primarily, the EFNEP homemakers were from minority races: black, Indian, and Spanish American. The average EFNEP family in Choctaw County had 4.7 members and spent 35 percent of its income on food (see Appendix B).

Selection of the Sample

A table of random numbers was used to select the sample for this study (Compton and Hall, 1972). The total of 50 homemakers made up the sample group. Due to the inability to reach a few homemakers, a minimal refusal rate and inadequate benchmark records, it was necessary to reach into the pool of randomly selected substitutions to replace these homemakers. Homemakers identified from this method became the sample group for this study.

Instrumentation

Instruments for obtaining data in this study were developed in three parts:

I. family record

II. 24-hour Dietary Recall

III. food behavior questionnaire

The family record and 24-hour Dietary Recall that were used to establish benchmark information and to obtain information three or more years later were developed by USDA and are used to evaluate the effectiveness of the EFNEP program nationally (see Appendices C and D).

Since the 24-hour Dietary Recall used in this study established only dietary levels for the homemaker, a questionnaire was developed by the researcher to obtain information about food behaviors of the homemaker (see Appendix E).

Questions included on the questionnaire were also designed to obtain information that could be used to determine if the homemaker continued to seek nutrition educational information since progressing

out of the EFNEP program. In addition, a question was developed to obtain sources of the nutrition information. Questions were of three types: "yes" or "no," multiple choice, and essay. In all cases, the questions were read to the homemaker by the nutrition aide who then checked the appropriate answer.

On the 24-Hour Dietary Recall, the aides recorded food consumed by the homemaker over the past 24-hour period. The homemaker's diet was rated "according to 2-2-4-4 two servings of meat and milk and four servings of bread/cereal and fruits/vegetables" (Science and Education Administration--Extension, 1979, p. 40). Based upon this information, the homemaker's diet was scored. The score is obtained from A Scoring Table for the 24-Hour Food Recall (Appendix F), which provides a quantification of the 24 hour dietary recall. The scoring table was developed to assimilate dietary recall information into a set of "numerical scores ranging from 0-100 and descriptive of the reported diet" (Munger and Jones, 1976, p. 211). A score of 100 is based on two servings each of milk and milk products and meat or meat substitutes, and four servings each of fruits and vegetables and breads and cereals (Appendix G).

Collection of Data

The data obtained for the study were collected by the EFNEP Nutrition Aides at two different time periods. (Permission was obtained from the Oklahoma State University Cooperative Extension Service and United States Department of Agriculture Extension Service for EFNEP Nutrition Aides to make home visits to obtain information for this study.) The benchmark data were obtained by the nutrition aide at the time the homemaker progressed out of the EFNEP program. These

data included a 24-hour dietary recall of all foods and beverages consumed by the homemaker. Three or more years later, the nutrition aide personally interviewed the randomly selected sample of homemakers to obtain data which were used to determine long-term effect of the Expanded Food and Nutrition Education Program.

Four of the five nutrition aides collecting the data were the original aides who had collected the benchmark data. This factor provided a consistency in the way the questions were asked to obtain dietary information.

Prior to the collection period, the researcher met with each of the nutrition aides and explained the study and instruments that were used to collect data. The questions included on the questionnaire were discussed carefully in order that the nutrition aides would understand the importance of each question and the need to elicit a response from the homemaker for each question. Data were collected during the summer of 1978.

Analyses of the Data

Responses from the homemakers were key coded in accordance with nutritive values outlined in House and Garden Bulletin No. 72 (USDA-Science and Education, 1978), and recorded on 80-column computer data sheets. This information was key punched on computer cards. Frequencies and percentages of responses were determined for each question. Adequacy of food intake was obtained from information provided by the 24-hour dietary recall from each subject.

The computer program which was used to analyze dietary intake was developed by the Food, Nutrition, and Institution Administration

Department, Oklahoma State University. Analysis of Variance and F-test statistical techniques were used to determine significance of the association between adequacy of food intake and selected variables. These variables were income level of homemaker, educational background of homemaker, number of children in the home, ethnic background of homemaker, and wheter or not the family had a home garden. The .05 level of significance was established for this study.

CHAPTER IV

RESULTS AND DISCUSSION

The purpose of this study was to evaluate the nutritional adequacy of the diets of homemakers who had progressed out of the EFNEP program three or more years to determine the effectiveness of the EFNEP program in producing sustained dietary levels for homemakers. Fifty homemakers participated in the study.

Background of Participants

Age

The majority of homemakers in this study (70%) were under 40 years of age. Only one homemaker was less than 20 years old. Those homemakers 50 years and older represented only 14 percent of the total (Appendix H).

Income

Monthly income of the homemakers was classified in five categories. The data showed that the majority of the homemakers (52%) had a monthly income of $333.00 or less. It is noteworthy to observe that nine (18%) of the homemakers had a monthly income of $167.00 or less (Appendix H).

Education

Twenty-eight (56%) of the homemakers in this study had a 9-12th

grade education compared to 44 percent of the homemakers having less than a 12th grade education. None of the homemakers had schooling past the 12th grade (Appendix H).

Children in the Home

Seventy-eight percent of the homemakers in this study had three or fewer children living in the home. Twenty-two percent had four or more children living in the home. All of the homemakers had at least one child living in the home at the time the benchmark was obtained. At the time of this study, three or more years later, six (12%) of the homemakers did not have a child in the home. The highest number of children per homemaker reported was nine. There were two homemakers reporting that number of children (see Appendix H).

Ethnic Origin

The majority of homemakers (54%) in this study were white. Twenty-six percent of the homemakers were black, and the remaining 20 percent were Spanish-American and American Indian (Appendix H).

Home Garden

More than half (60%) of the homemakers in this study reported having a home garden. Twenty homemakers (40%) did not have a home garden (Appendix H).

Analyses of Data

A diet was considered adequate if two-thirds of the Recommended Dietary Allowance (RDA) was met for all nutrients studied. Information

for the 24-Hour Dietary Recalls obtained from the 50 homemakers showed that 90 percent of the homemakers maintained an adequate diet three or more years after progressing out of the EFNEP program (Appendix I).

By comparing the benchmark 24-hour dietary recall data (Day 1) and the 24-hour dietary recall data three or more years later (Day 2) for each of the homemakers, it was possible to determine any changes in the number of servings for each of the Four Food Groups over a period of time (Appendix J). The data identified that 46 percent of the homemakers decreased their number of milk servings by one or more; 36 percent increased their milk servings by one or more; 18 percent showed no change in the number of milk servings consumed. Forty-eight percent of the homemakers showed a decrease in the number of meat servings consumed; 30 percent showed an increase in the number of servings; and 22 percent of the homemakers showed no change in the number of meat servings consumed. In the fruit and vegetable group, 52 percent of the homemakers increased the number of servings consumed; 38 percent decreased their servings; and 10 percent showed no change. In the bread and cereal group, 56 percent of the homemakers decreased their number of servings; 34 percent increased their number of servings; and 10 percent showed no change. Results of dietary changes for homemakers are shown on Figures 1, 2, 3, and 4.

From these data it appeared that the adequacy of food intake, according to the Basic Four Food Groups, had been sustained after the homemaker progressed out of the EFNEP Program three or more years.

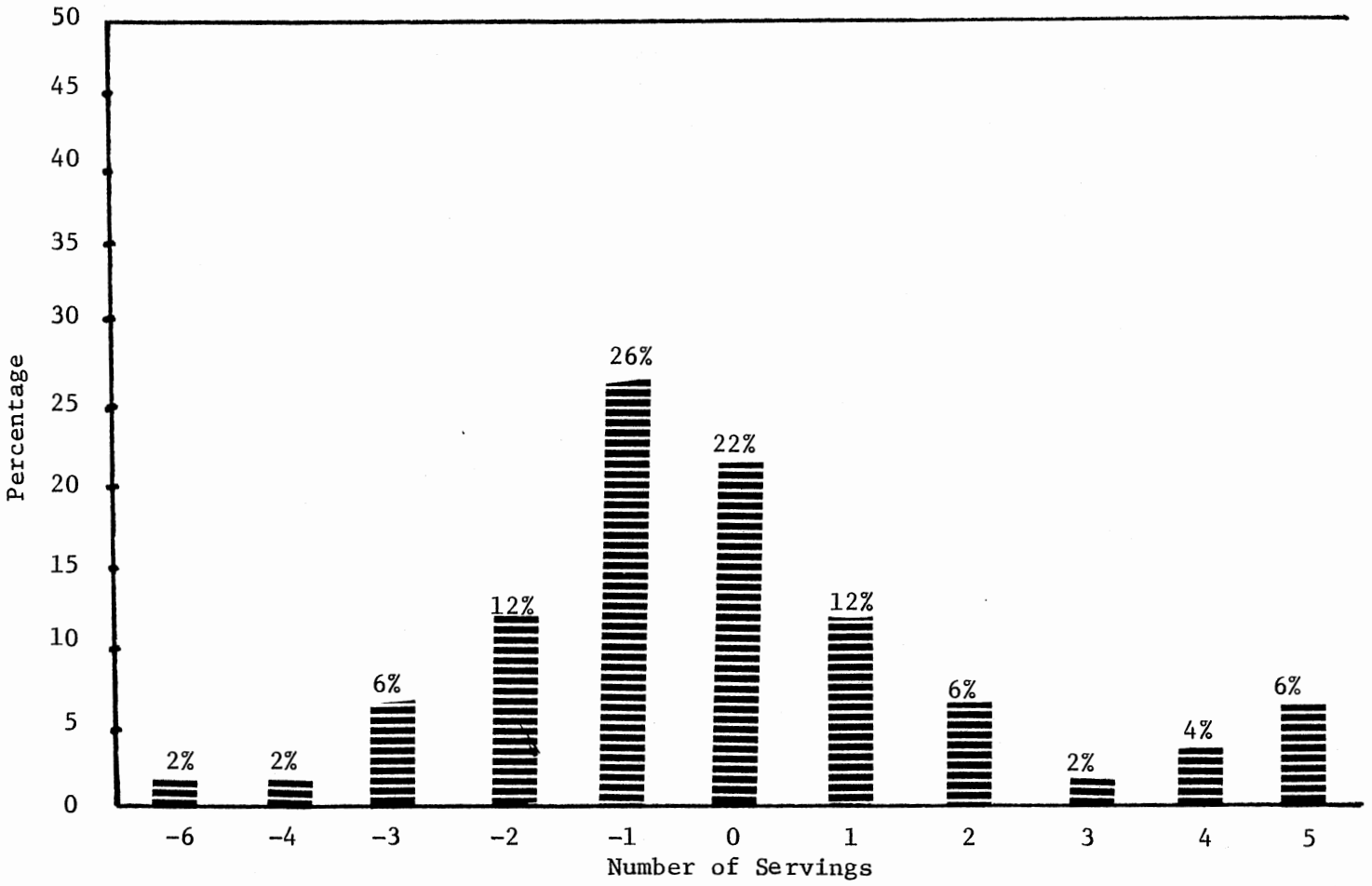

Figure 1. Percentage of Change in Number of Servings From the Meat Group, 1975-1978, as Reported by 50 Homemakers

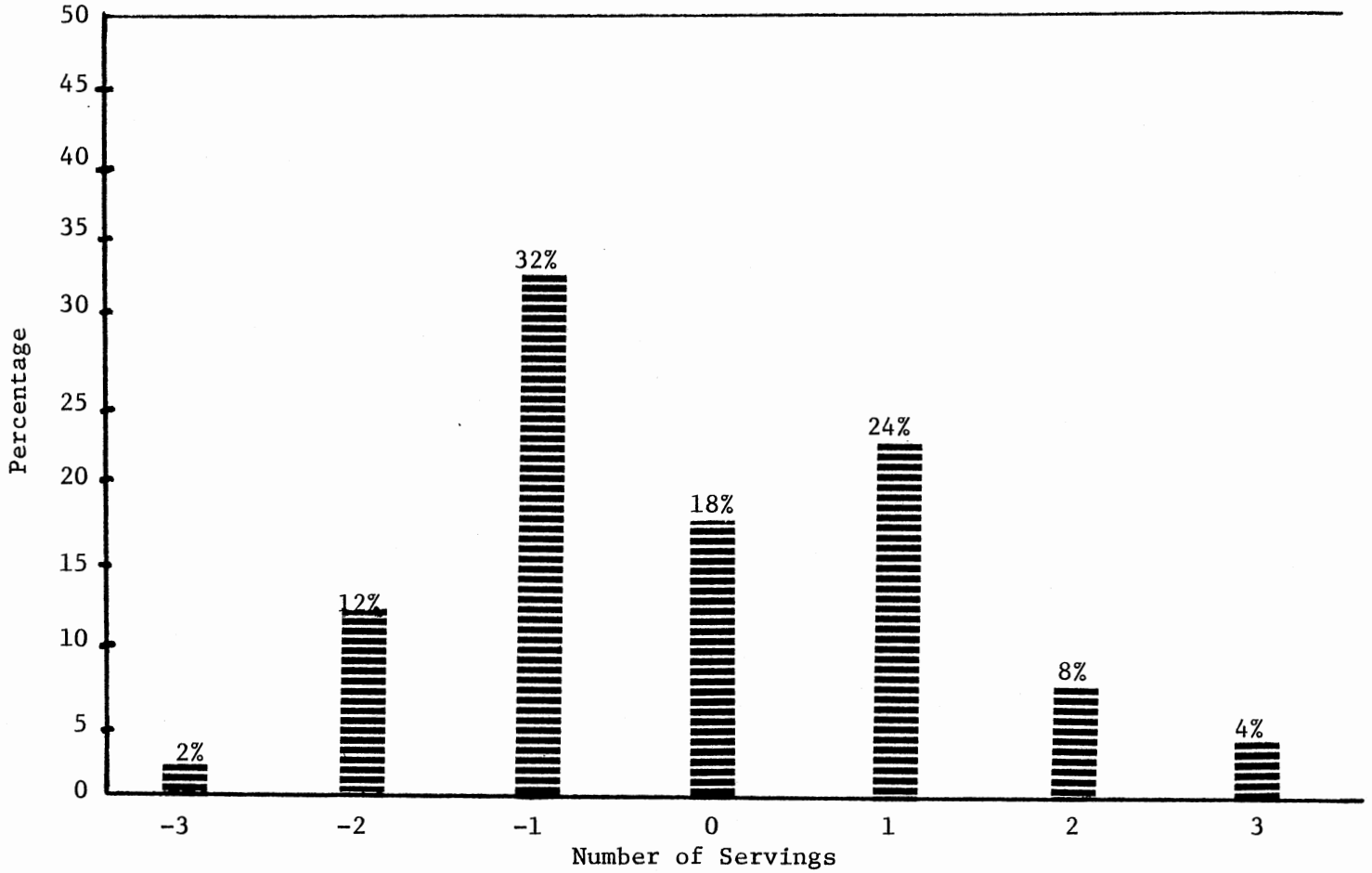

Figure 2. Percentage of Change in Number of Servings From the Milk Group, 1975-1978, as Reported by 50 Homemakers

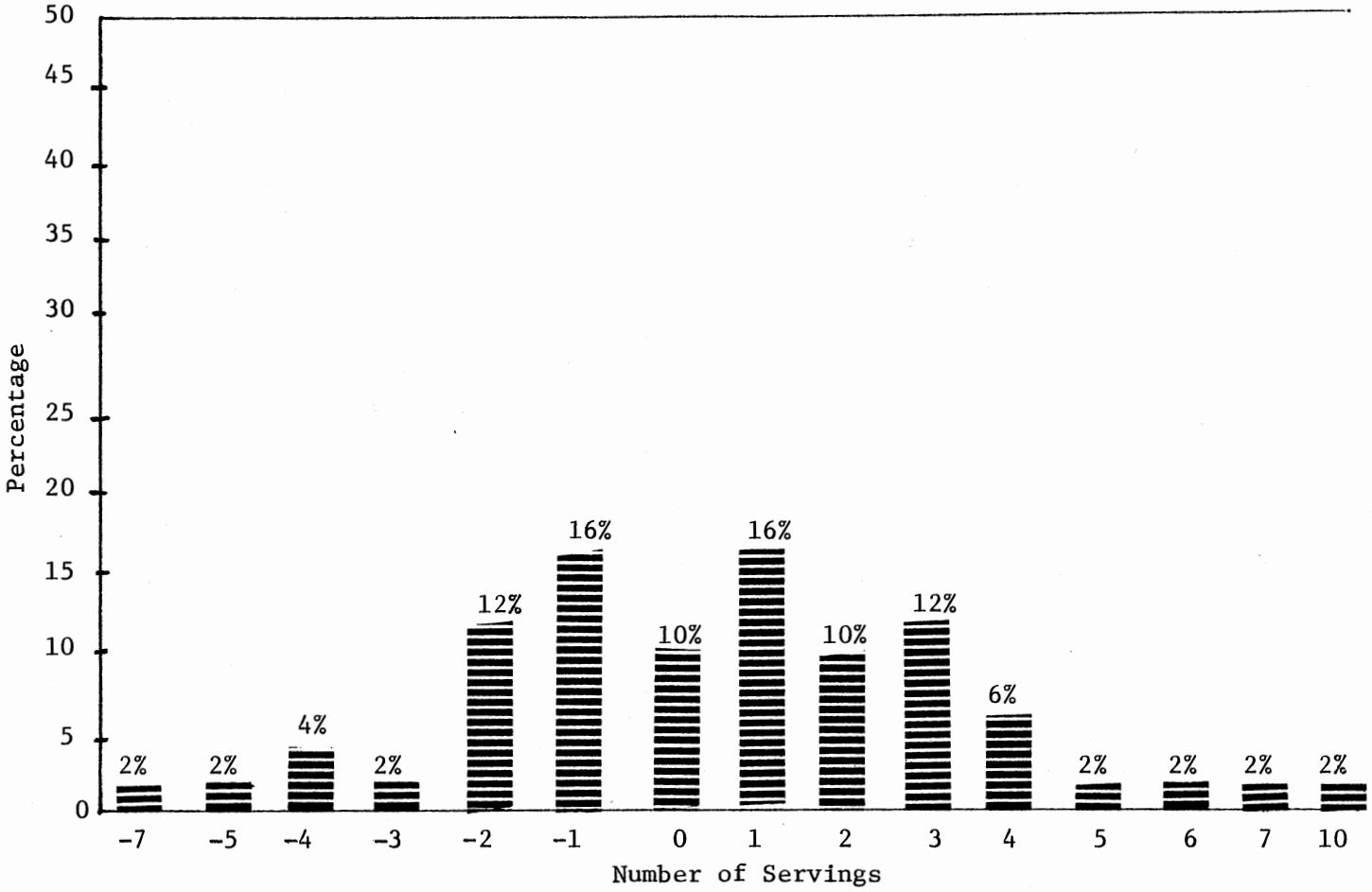

Figure 3. Percentage of Change in Number of Servings from the Fruit and Vegetable Group, 1975-1978, as Reported by 50 Homemakers

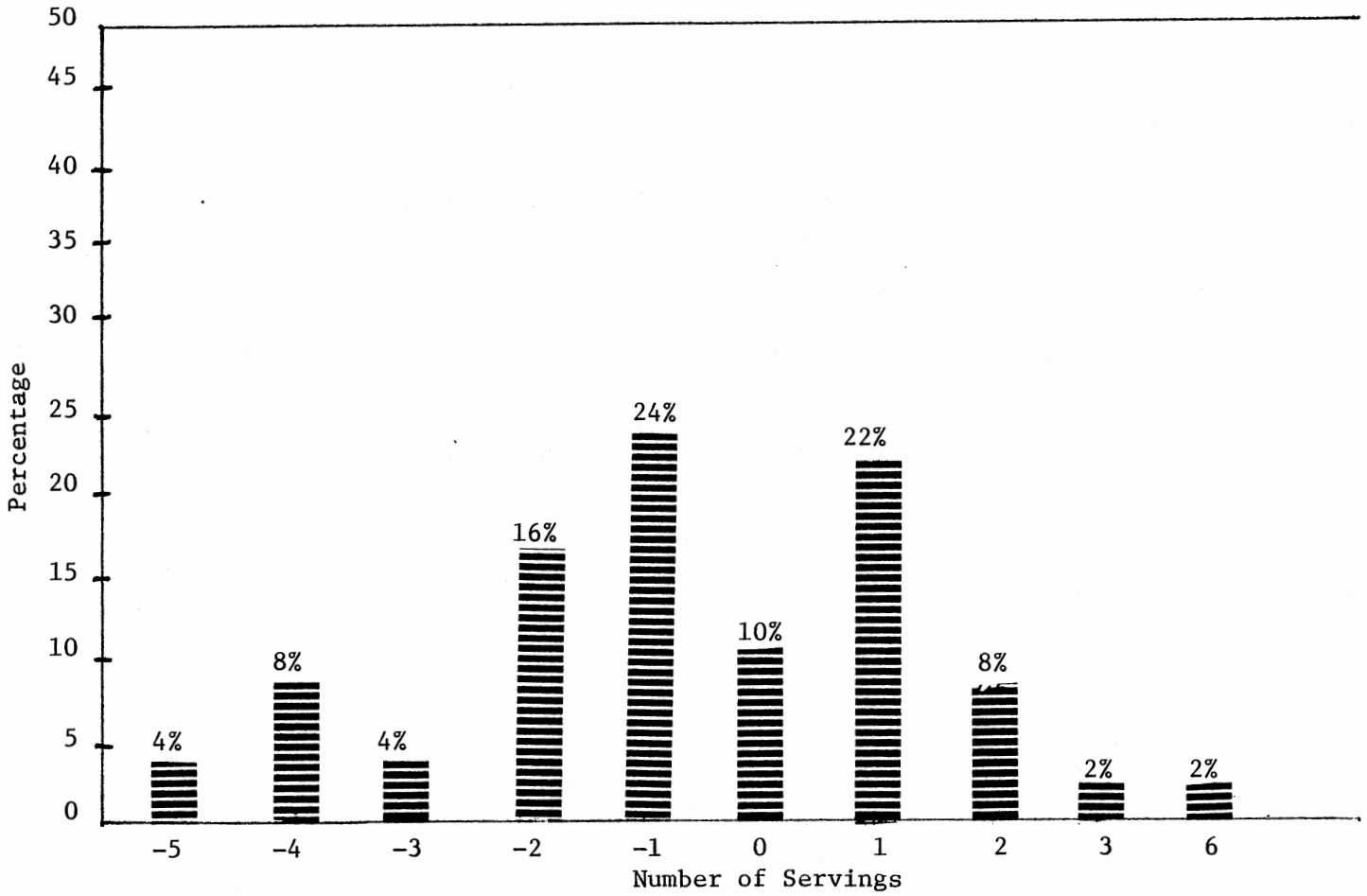

Figure 4. Percentage of Change in Number of Servings From the Bread and Cereal Group, 1975-1978, as Reported by 50 Homemakers

Testing Hypotheses

Hypothesis 1

There is no significant association between adequacy of dietary intake and income level of the family.

Nine homemakers in this study reported monthly incomes of $167.00 or less. Seven (78%) of these homemakers had adequate diets. All 13 homemakers (100%) having a monthly income of $418.00 and over had adequate diets. The data in Table I show that as income level of the homemaker increased, the percentage of adequate diets also increased.

TABLE I

ADEQUACY OF DIET ACCORDING TO FAMILY INCOME
(N = 50)

Monthly Income	Dietary Intake			
	Adequate		Inadequate	
	Number	Percent	Number	Percent
$084-167	7	78	2	22
$168-250	11	85	2	15
$251-333	4	100	0	0
$334-416	10	91	1	9
$418 and over	13	100	0	0
Total	45		5	

The analysis of variance statistical technique identified an F-score of 1.73 for the meat group, 0.22 for the milk group, 0.63 for the fruit and vegetable group, and 0.42 for the bread and cereal group.

Even though the data in Table I show evidence that as the homemakers' income increased, the percentage of adequate diets also increased, none of the F-scores was significant at the .05 level. Hence, the null hypothesis was accepted. There was no significant association between adequacy of the diet according to the four food groups and income level of the family (Table II).

TABLE II

ANALYSIS OF VARIANCE FOR ADEQUACY OF BASIC FOUR FOOD GROUPS ACCORDING TO FAMILY INCOME
(N = 50)

Food Group	DF	Mean Square	F-Score
Meat	4	7.876	1.73
Milk	4	0.037	0.22
Fruit and Vegetable	4	5.747	0.63
Bread and Cereal	4	1.943	0.42

Note: Probability = <.05

Hypothesis 2

There is no significant association between adequacy of dietary intake and educational background of the homemaker.

Nineteen (86%) of the homemakers with an educational level of 9th grade and below had adequate diets. The majority of the homemakers (93%) having a 9-12th grade education had an adequate diet.

The EFNEP program has been effecive as a method of reaching and

teaching homemakers having different educational backgrounds. However, it is interesting to note that in this study the higher the educational level of the homemaker, the lower the percentage of inadequate diets (Table III).

TABLE III

ADEQUACY OF DIET ACCORDING TO EDUCATIONAL BACKGROUND OF HOMEMAKER
(N = 50)

Educational Level	Dietary Intake			
	Adequate		Inadequate	
	Number	Percent	Number	Percent
9th grade and below	19	86	3	14
9th-12th grade	26	93	2	7
Total	45		5	

While the data in Table III identified that dietary adequacy increased as educational levels increased, the F-scores obtained from the AOV statistical technique did not prove this association to be significant at the .05 level.

The results of the analysis of variance statistical technique presented in Table IV revealed that none of the F-scores were significant at the .05 level. Therefore the null hypothesis was accepted. There was no significant association between adequacy of the four food groups and educational level of the homemaker.

TABLE IV

ANALYSIS OF VARIANCE FOR ADEQUACY OF BASIC FOUR FOOD GROUPS ACCORDING TO EDUCATIONAL LEVEL OF HOMEMAKER (N = 50)

Food Group	DF	Mean Square	F-Score
Meat	1	0.019	0.00
Milk	1	2.639	1.65
Fruit and Vegetable	1	2.496	0.28
Bread and Cereal	1	1.203	0.27

Note: Probability = <.05

Hypothesis 3

There is no significant association between adequacy of dietary intake and number of children in the home.

In Table V, the data identified that there was no definite pattern in number of homemakers having adequate diets and the number of children in the home. All of the homemakers (100%) who did not have children in the home had adequate diets. Homemakers who had 1-3 children in the home showed a slight decrease in number of adequate diets. Eighty-five percent of this group had adequate diets.
Dietary adequacy increased for those homemakers having four or more children in the home. All of these homemakers (100%) had adequate diets.

TABLE V

ADEQUACY OF DIET ACCORDING TO NUMBER OF CHILDREN IN THE HOME
(N = 50)

Number of Children	Dietary Intake			
	Adequate		Inadequate	
	Number	Percent	Number	Percent
0	6	100	0	0
1	7	88	1	12
2	8	80	2	20
3	13	87	2	13
4	4	100	0	0
5	3	100	0	0
6	1	100	0	0
7	1	100	0	0
9	2	100	0	0
Total	45		4	

The analysis of variance statistical technique resulted in an F-score of 1.68 for the meat group; 2.69 for the milk group; 0.67 for the fruit and vegetable group; and 1.36 for the bread and cereal group. The F-score for the milk group indicated a significant association at the .05 level between number of servings from this group and the number of children in the home. As the number of children increased, the number of servings of milk reported on the homemakers' dietary recall also increased. F-scores for the meat, fruit and vegetable and bread and cereal groups showed no significance at the .05 level. Therefore we accept the null hypotheses for these three food groups. There was no significant association between adequacy of meat, fruit and vegetable and bread and cereal and the number of children in the home. A significant association was identified at the .05 level between the milk group

and the number of children in the home. Hence, the null hypothesis was rejected for the milk group (see Table VI).

TABLE VI

ANALYSIS OF VARIANCE FOR ADEQUACY OF BASIC FOUR FOOD GROUPS ACCORDING TO NUMBER OF CHILDREN IN THE HOME (N = 50)

Food Group	DF	Mean Square	F-Score
Meat	4	7.646	1.68
Milk	4	3.837	2.69*
Fruit and Vegetable	4	6.095	0.67
Bread and Cereal	4	5.854	1.36

Note: Probability = <.05
*Significant at the .05 level

Hypothesis 4

There is no significant association between adequacy of dietary intake and ethnic background of the homemaker.

The racial composition of the participants was 44.0 percent white, 26.0 percent black, 18.0 percent American Indian, and .02 percent Spanish-American (Table VII). Distribution was approximately the same as the composition of the population of homemakers which was 46.0 percent white, 37.0 percent black, 14.0 percent American Indian, and 3.0 percent Spanish-American.

In this study the majority of white homemakers (81%) had adequate diets. However, all of the minorities, black, American Indian, and

Spanish-American homemakers had adequate diets.

TABLE VII

ADEQUACY OF DIET ACCORDING TO ETHNIC BACKGROUND OF HOMEMAKER (N = 50)

Ethnic Background	Dietary Intake			
	Adequate		Inadequate	
	Number	Percent	Number	Percent
Black	13	100	0	0
Spanish-American	1	100	0	0
American Indian	9	100	0	0
White	22	81	5	19
Total	45		5	

The analysis of variance statistical technique resulted in an F-score of 1.50 for the meat group, 2.50 for the milk group, 4.86 for the fruit and vegetable group, and 0.36 for the bread and cereal group. Attention is drawn to the F-scores for the milk and fruit and vegetable groups. These F-scores indicated a significant association between the number of servings from these two food groups and the ethnic background of the homemaker at the .05 level. Therefore the null hypotheses were rejected for the milk and fruit and vegetable groups. The remaining F-scores were not significant at the .05 level. Hence the null hypothesis was accepted for the meat and bread and cereal groups. There was no significant association between the meat and bread and cereal groups, and the ethnic background of the homemaker (Table VIII).

TABLE VIII

ANALYSIS OF VARIANCE FOR ADEQUACY OF BASIC FOUR FOOD GROUPS ACCORDING TO ETHNIC BACKGROUND OF HOMEMAKER (N = 50)

Food Group	DF	Mean Square	F-Score
Meat	1	8.170	1.50
Milk	1	3.179	2.50*
Fruit and Vegetable	1	42.306	4.86*
Bread and Cereal	1	1.941	0.36

Note: Probability = <.05
*Significant at the .05 level

Hypothesis 5

There is no significant association between adequacy of dietary intake and whether the family has a home garden.

Minority groups are more likely to have a home garden than are white groups, thus contributing to the significance of fruit and vegetable servings and ethnic background of the homemaker. In addition, the larger size families found among minority groups could contribute to the increased number of servings from the milk group.

All of the homemakers (100%) who had home gardens had adequate diets. Only 75 percent of the homemakers who did not have home gardens had adequate diets, indicating that having a home garden contributes to the dietary level of the homemaker (Table IX).

Data for this study were collected during the growing season, and

this may have contributed to the fact that a majority 60% of the homemakers had home gardens.

TABLE IX

ADEQUACY OF DIET ACCORDING TO WHETHER HOMEMAKERS' FAMILY HAD A HOME GARDEN
(N = 50)

	Dietary Intake			
	Adequate		Inadequate	
Home Garden	Number	Percent	Number	Percent
No	15	75	5	25
Yes	30	100	0	0
Total	45		5	

While the data in Table IX indicated that the adequacy of the homemakers' diet increased if they had a home garden, the statistical techniques, analysis of variance results identified no significant association at the .05 level. F-scores were 1.50 for the meat goup, .07 for the milk group, .61 for the fruit and vegetable group, and .05 for the bread and cereal group. None of these F-scores were significant at the .05 level. Therefore the null hypotheses were accepted. There was no significant association between adequacy of the four food groups and whether the homemaker had a home garden (Table X).

TABLE X

ANALYSIS OF VARIANCE FOR ADEQUACY OF BASIC FOUR FOOD GROUPS ACCORDING TO WHETHER HOMEMAKER'S FAMILY HAD A HOME GARDEN (N = 50)

Food Group	DF	Mean Square	F-Score
Meat	1	7.157	1.50
Milk	1	0.120	0.07
Fruit and Vegetable	1	5.386	0.61
Bread and Cereal	1	0.238	0.51

Note: Probability = <.05

Sources of Nutrition Information

In order to gain greater knowledge about the food behavior of the homemakers who had progressed out of the EFNEP program, questions were included on the questionnaire to determine if the homemaker continued to seek out nutrition information, how many sources of information were used, and what these sources were.

The majority of homemakers (98%) continued to use one or more sources of nutrition information since progressing out of the EFNEP program (Figure 5). Twenty percent of these homemakers used three or more different sources of nutrition information. It is interesting to note that all of the homemakers using three or more sources of nutrition information had adequate diets.

Figure 6 shows the different sources of nutrition information used by the homemakers in this study. In descending order these were:

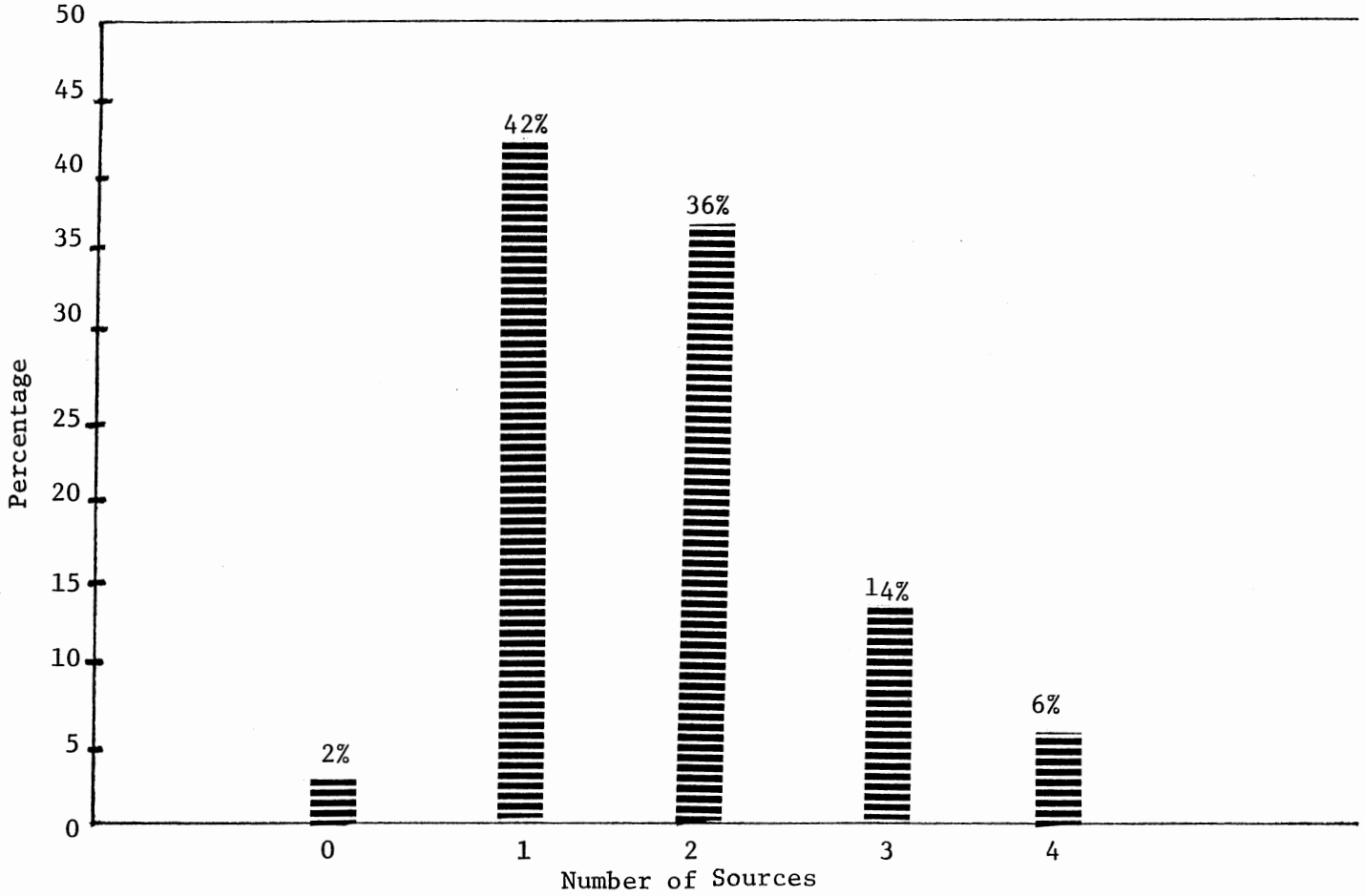

Figure 5. Number and Percentage of Sources of Nutrition Information Used by 50 Homemakers

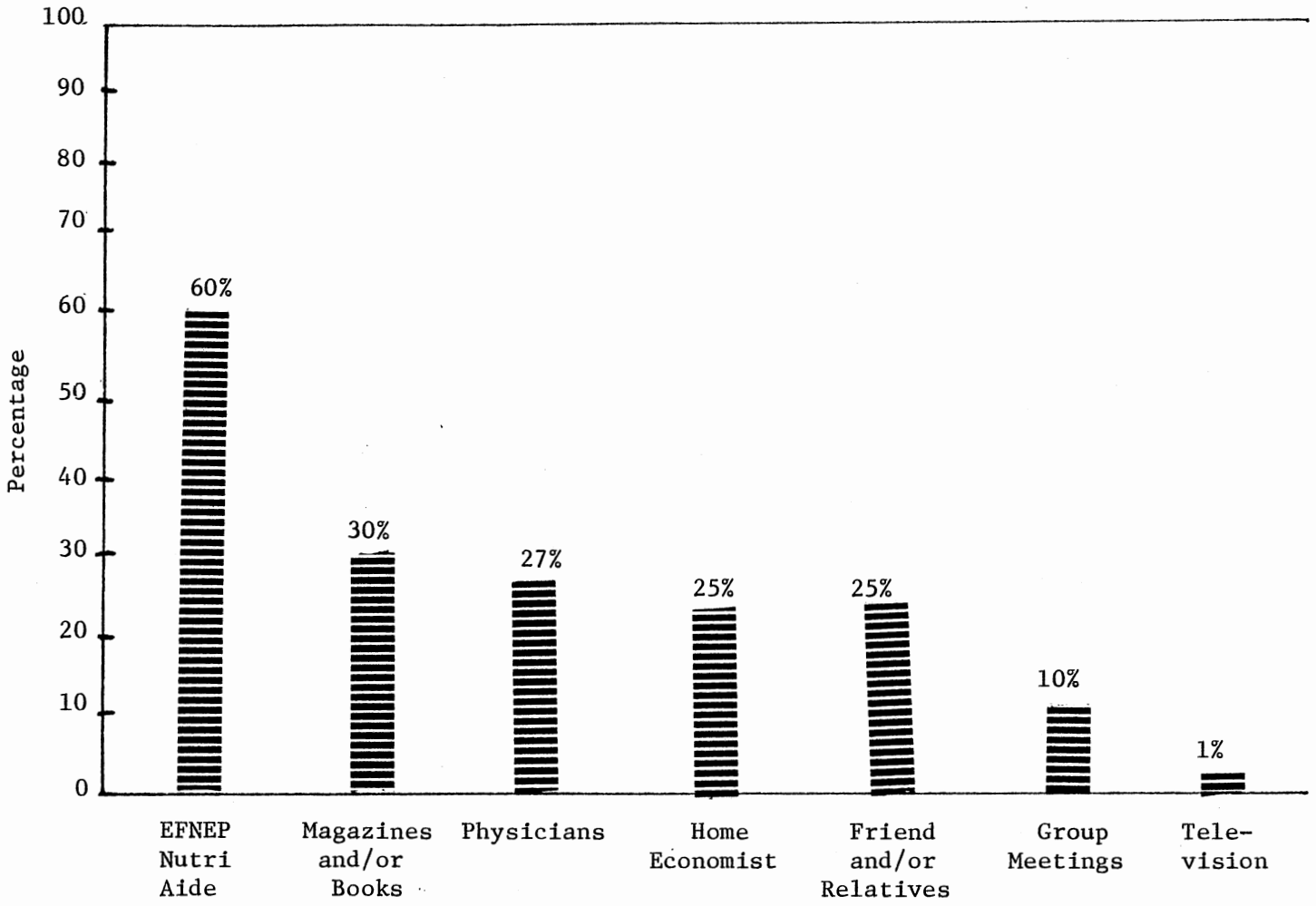

Figure 6. Sources of Nutrition Information Used by Homemakers

EFNEP Nutrition Aide	60%
Magazines and/or Books	30%
Physician	27%
Extension Home Economist	25%
Friends and/or Relatives	25%
Nutrition Education Group Meetings	10%
Television	01%

Even though no statistical analyses were employed to determine the significance of the association between the adequacy of dietary intake and the number of sources of nutrition information used by the homemakers, it is evident from the data that those homemakers who used two or more sources of information tended to maintain an adequate diet to a greater extent than did those who used only one source of nutrition information (Figure 7).

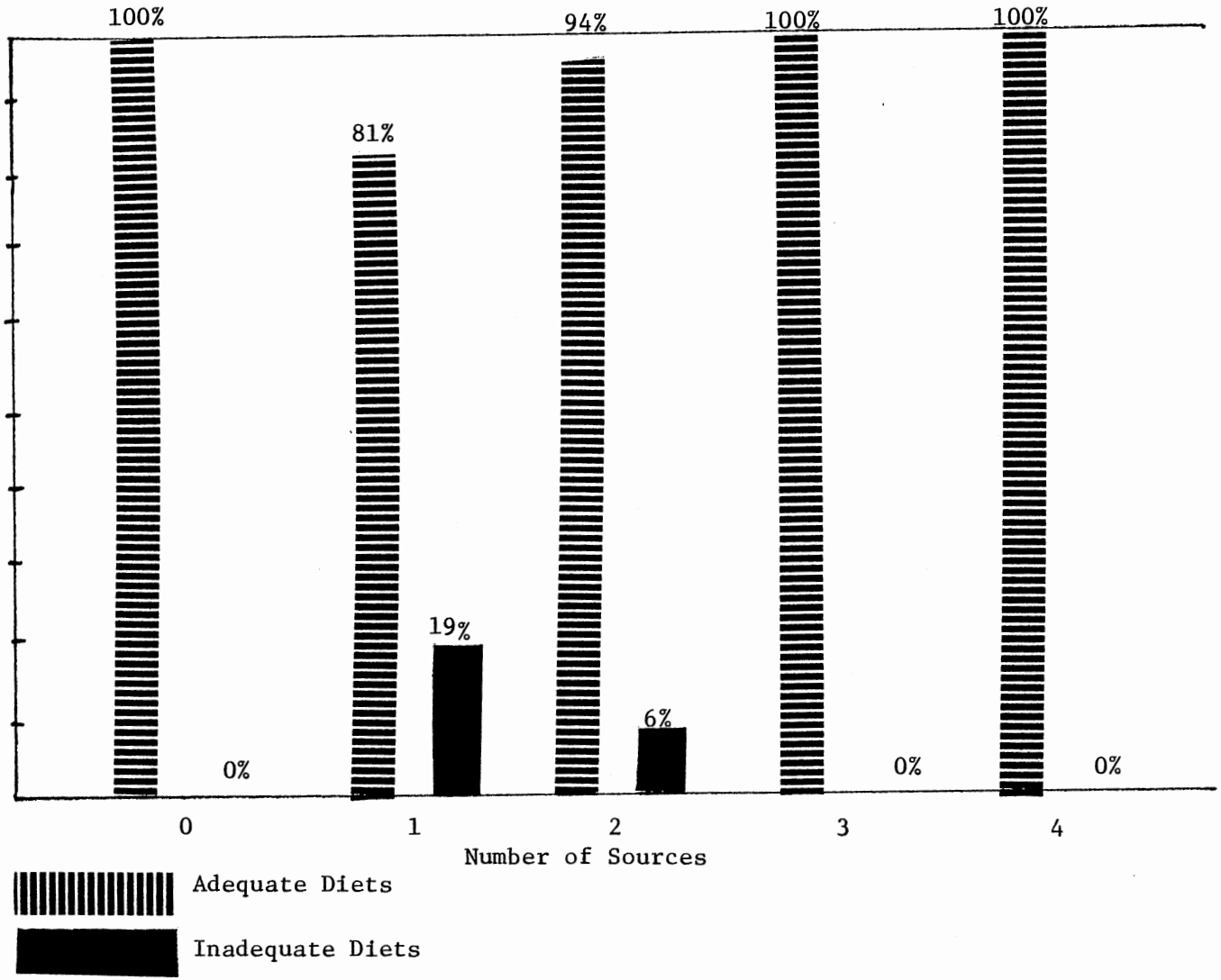

Figure 7. Number of Sources of Nutrition Information versus Adequacy of Diet

CHAPTER V

DISCUSSION AND SUMMARY

Discussion

During the summer of 1978, data were obtained from 50 homemakers in Choctaw County who had progressed out of the EFNEP program. A Family Record, 24-Hour Dietary Recall and a Food Behavior Questionnaire were completed in order to evaluate the nutritional adequacy of the diet of homemakers who had progressed out of the EFNEP prgram three or more years, to determine the effectiveness of the EFNEP program in producing sustained dietary levels.

Four of the five nutrition aides collecting the data were the original aides who collected the benchmark data. This factor provided reliability of dietary information.

Responses from the 50 homemakers were coded, key punched in the computer, and frequencies and percentages were determined for each question. Analysis of variance and F-test statistical techniques were used to determine significance of the association between adequacy of dietary recall according to selected variables. The level of significance was set at the $P = <.05$ level of confidence.

The majority of homemakers were under 40 years of age, had three or fewer children, a 9-12th grade education, monthly income of $333.00 or less, and had a home garden. Most of the homemakers were white; the remainder were black, American Indian, and Spanish-American.

Summary of Findings

Findings from this study showed that the majority of homemakers decreased their consumption of milk and bread and cereals, and increased their intake of fruits and vegetables. Almost one-half of the homemakers decreased their intake of meat; about one-third increased their intake of meat; and about one-fourth showed no change in meat consumption.

Adequacy of diet is defined by two-thirds or more of the RDA for protein, calcium, iron, vitamin A, thiamin, riboflavin, and vitamin C. Results of this study showed that the majority of homemakers (90%) successfully maintained their dietary levels. Thus it appeared from these data that adequacy of homemakers' diets, according to the Four Food Groups, have been sustained three or more years after the homemaker progressed out of the EFNEP program.

Homemaker characteristics, including income, educational background, number of children in the home, ethnic background, and whether the family had a home garden were studied to determine the association between adequacy of homemakers' diets and these characteristics.

Even though frequencies and percentages indicated that as income level of homemakers increased, the percentage of adequate diets also increased; the F-scores indicated that there was no significant association between adequacy of the four food groups and income level of the homemakers.

Similar findings were found when adequacy of the homemakers' diets was compared to the homemakers' educational background. F-scores indicated no significant association between adequacy of the four food groups and the educational level of the homemakers.

When the number of children in the home was analyzed according to adequacy of the homemaker's diet, the F-scores indicated that there was a significant association between the number of milk servings consumed by the homemaker and the number of children in the home. However, there was no siginificant association between the intake of meat, fruit and vegetable, breads and cereals and the number of children in the home.

Ethnic background of the homemaker was significantly associated with the adequacy of the homemaker's diet at the .05 level. Minority groups consumed more milk and fruit and vegetables than did the whites. However, there was no significant association between ethnic background of the homemaker and the consumption of meat or breads and cereals.

Data for this study showed that all of the homemakers (100%) having home gardens had adequate diets. However, there was no significant association at the .05 level between adequacy of the homemaker's diet and whether the family had a home garden.

The majority of homemakers (98%) continued to seek out one or more sources of nutrition information since progressing out of the EFNEP program. The most frequently used source of nutrition information reported by the homemakers were EFNEP Nutrition Aides, magazines and/or books, physicians, Extension Home Economists, and friends and/or relatives. The source least used by the homemakers for nutrition information was television.

The majority of homemakers use the EFNEP Aide three or more years after progressing out of the EFNEP program. In the author's opinion, this is a positive evaluation of the aide and the EFNEP program.

Conclusions

Conclusions based on the findings of this study are:

- The EFNEP program was effective in maintaining adequacy of the homemaker's food intake three or more years after progressing out of the program.
- Adequacy of the homemaker's food intake was not significantly associated with the homemaker's educational level, income level, or whether the family had a home garden.
- The homemaker's consumption of milk increased significantly with the number of children in the home.
- Minority homemakers consumed significantly more milk and fruits and vegetables than did white homemakers.
- Homemakers continued to seek out nutrition information three or more years after progressing out of the EFNEP program.
- Homemakers who used one or more sources of nutrition information had more adequate food intake than did homemakers who did not use any source of nutrition information.
- The nutrition aide continued to be the major source of information for the homemaker.

Recommendations Based on Findings of the Study

The data in this study led to the following recommendations:

1. That Cooperative Extension Service continue to seek funding

for the Expanded Food and Nutrition Education Program, and that the program be expanded to include additional Oklahoma counties with high percentages of low-income families.

2. That continued effort be made to reach homemakers leaving the EFNEP program with additional nutrition information.

3. That nutrition education focus should be on continued importance of home gardens for adequacy of fruits and vegetables.

Recommendations for Further Study

The researcher proposes the following recommendations for further study:

1. To determine the long-term effect of the EFNEP program on the children of EFNEP homemakers after they leave the home.

2. To determine the effect of other characteristics of the family on the dietary habits of homemakers and family members.

3. To determine the adequacy of fruits and vegetables in the diet of homemakers during other seasons of the year.

4. To conduct this study or a similar study in all EFNEP counties in Oklahoma.

5. To determine the effectivness of computer data for record keeping and evaluation of the EFNEP program.

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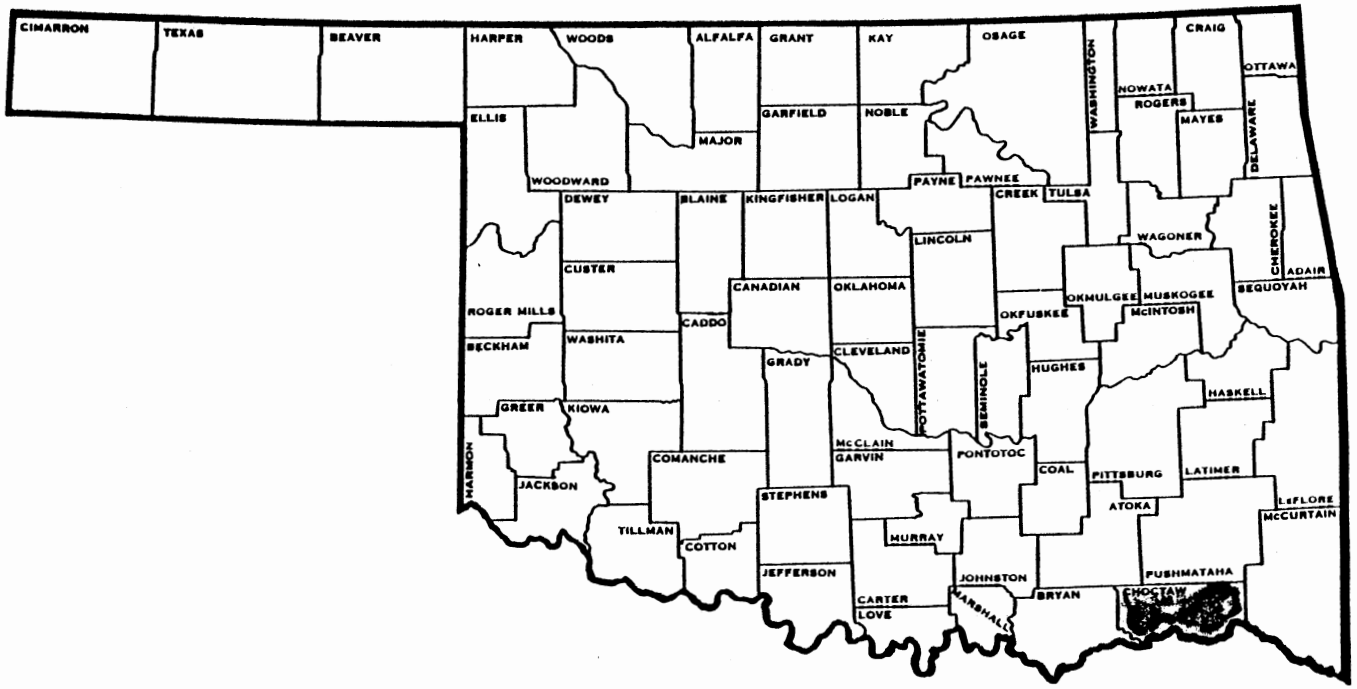
APPENDIX A

MAP SHOWING LOCATION OF CHOCTAW COUNTY, OKLAHOMA



Location of Choctaw County, Oklahoma

APPENDIX B

CHARACTERISTICS OF POPULATION OF HOMEMAKERS ENROLLED IN THE EXPANDED FOOD AND NUTRITION EDUCATION PROGRAM IN CHOCTAW COUNTY

CHARACTERISTICS OF POPULATION OF HOMEMAKERS ENROLLED IN THE EXPANDED FOOD AND NUTRITION EDUCATION PROGRAM IN CHOCTAW COUNTY, 1978

A. Place of Residence and Welfare Status

	Percent
Rural Non-Farm	75
Rural Farm	25
	100
Welfare Recipient	33
Non-Welfare Recipient	67
	100
Participants in Food Stamp Program	45

B. Characteristics of the Homemaker

Race	Percent
Caucasian	46
Black	37
Indian	14
Spanish-American	3
	100

Education	
Less than 8th grade	27
8th grade or over	73
	100

Age	
Under 24 years	22
24-55 years	65
56 and over	13
	100

C. Family Income

	Percent
$1,000 to $4,000	70
$4,000 to $5,000	5
$5,000 and over	25
	100

D. Size of Families

Persons	Percent
1-2	17
3-5	10
6-8	57
over 8	16
	100

E.

Families with Children in School	Percent
	65

APPENDIX C

EXPANDED FOOD AND NUTRITION FAMILY RECORD

PART I

EXPANDED FOOD AND FAMILY RECORD - PART I

OMB NO. 40R3618

EXPANDED FOOD AND NUTRITION EDUCATION PROGRAM

FAMILY RECORD

A. DESCRIPTION

1. AIDE'S NAME	2. STATE NO.	3. UNIT NO.

Fill out for each family in unit as soon as possible and every 6 months thereafter. Keep in family file after review by Trainer/Agent.

4. FAMILY ID NO. _____

(a) Name _____
(b) Street _____
(c) City _____ (d) State _____

5. DATE FAMILY ENROLLED _____

6. FAMILY RECEIVED *(Some time during the year)*:
(a) ☐ Participating in USDA Food Stamp/Food Distribution Program
(b) ☐ WIC/CSFP
(c) ☐ Welfare

FAMILY MEMBERS *(First name)* (7)	AGE *(years)* (8)	SEX Male (9)	SEX Female (10)	CHECK IF "YES" Now in School (11)	CHECK IF "YES" Participated in Child Nutrition Programs last week (12)
NO. OF FAMILY MEMBERS _____ TOTALS →					

13. HIGHEST GRADE IN SCHOOL COMPLETED BY HOMEMAKER

☐ 8th Grade or less ☐ 9th thru 10th ☐ 11th thru 12th ☐ Beyond High School

14. CHECK FOR HOMEMAKER

(a) ☐ White (not of Hispanic origin) (c) ☐ Hispanic (e) ☐ Asian or Pacific Islander
(b) ☐ Black (not of Hispanic origin) (d) ☐ American Indian/Alaskan Native

15. TERMINATION DATE AND REASON

16. PLACE OF RESIDENCE

☐ Farm
☐ Towns under 10,000 and rural non-farm
☐ Towns and Cities 10,000 to 50,000
☐ Suburbs of Cities of over 50,000
☐ Central Cities of over 50,000

APPENDIX D

24-HOUR DIETARY RECALL

PART II

24-HOUR DIETARY RECALL - PART II

B. HOMEMAKER FOOD CONSUMPTION, FAMILY INCOME, AND EXPENDITURE

1. HOW MANY FOOD RECALL RECORDS HAVE YOU TAKEN ON THIS FAMILY *(including this one)*? _____

2. DATE

3. WHAT DID HOMEMAKER EAT AND DRINK IN THE LAST 24 HOURS?

To be filled out by Aide or Homemaker

Kind of food and drink *(Enter main foods in mixed dishes)*

	TO BE FILLED OUT BY TRAINER AGENT			
	Milk	Meat	Veg./ Fruit	Bread/ Cereal
Morning:				
Midmorning:				
Noon:				
Afternoon:				
Evening:				
Before bed:				
TOTAL NO. OF SERVINGS	(5)	(6)	(7)	(8)
9. TOTALS 1 OR MORE SERVINGS OF EACH OF FOUR FOOD GROUPS.	1	1	1	1
	☐ YES ☐ NO			
10. TOTALS 2 OR MORE SERVINGS MILK/MEAT; 4 OR MORE VEG/FRUIT AND BREAD/CEREALS	2	2	4	4
	☐ YES ☐ NO			

4. TOTAL ACTUAL INCOME FOR FAMILY LAST MONTH?

$_____

(Include wages and salaries, social security, welfare and insurance payments, pensions and cash support from others. If family has income from farming, include 1/12th of last year's income after expenses.)

Check one:

- ☐ Under $315
- ☐ $316 - $418
- ☐ $419 - $519
- ☐ $520 - $621
- ☐ $622 - $723
- ☐ $724 - $824
- ☐ $825 - $917
- ☐ $918 and over

APPENDIX E

FOOD BEHAVIOR QUESTIONNAIRE

PART III

FOOD BEHAVIOR QUESTIONNAIRE
Part III

1. When you shop at the grocery store do you read the nutritional labels on the containers

   All the time____
   Most of the time____
   Seldom____
   Never____

2. If you wanted to know more about nutrition, would you (check each one used by the homemaker)

   Call the County Extension Home Economist____
   Call your former Nutrition Aide____
   Look up the information in a book or magazine____
   Listen to the radio____
   Watch TV____
   Attend a group meeting____
   Call a friend or relative____
   Talk with your doctor____
   Other, specify_____

3. Do you now belong to an Extension Homemakers Group? Yes___ No___

4. Since leaving the Expanded Food & Nutrition Program have you attended any special programs or events offered by OSU Extension Service to learn more about food & nutrition? Yes___ No___

5. If yes, how many of these programs or events have you attended in the past year

   One____
   Two____
   Three____
   Four____
   Five____
   Other number, specify____

6. When you buy food for your family would you say you buy food with good nutritional value

   Always____
   Most of the time____
   Sometimes____
   Seldom____

7. How often do you introduce new recipes with good nutritional value in your family meals

Once a week____
Once a month____
Seldom____
Never____

8. How often do you fix desserts that are high in calories for your family

Once a week____
Once a day____
Occasionally____
Seldom____
Never____

9. How often do you talk with your children about what they ate at the school lunch program

Daily____
Once a week____
Only occasionally____
Seldom____
Never____

10. Do you try to participate in small group meetings that can help you learn to cook the kinds of foods your family needs? Yes___ No___

11. What was the last new food you introduced to your family? (Specify the food introduced in each category)

Meat dish____
Dessert____
Vegetable____
Fruit____
Bread____
Snack____

12. Who is responsible for planning family meals, grocery shopping, and food preparation in your home

Homemaker____
Older youth____
Husband____
Grandparent____
Other, specify____

13. Does your family eat at least one food from the Four Food Groups at the following meals

Breakfast____
Lunch____
Dinner____
None of these____

14. Do your children drink milk at

Breakfast____
Lunch____
Dinner____
None of these____

15. When your family eats together do the children eat the same foods as you do

All of the time____
Most of the time____
Seldom____
Never____

16. How often would you say your family eats balanced meals

All of the time____
Most of the time____
Occasionally____
Seldom____
Never____

17. What is the most often served snack in your home

Soft drinks____
Cookies____
Candy____
Ice cream____
Fruit____
Raw Vegetables____
Cheese____
Other, specify____

18. Of all the meals you serve your family, at which meal during the day do you feel you do your best job of serving nutritionally balanced food?

Breakfast____
Lunch____
Dinner____

19. What foods do you feel you have the most trouble getting your family to eat

Meats____
Fruits and vegetables____
Breads and cereals____
Milk and milk products____

20. Besides the food you buy at the grocery store, what other sources of food do you have

Home garden____
Food from relatives____
Food from friends____
Other, specify____

21. How often do your children eat at the school lunch program

Every day____
Once a week____
Occasionally____
Seldom____
Never____

22. How often would you say your children drink soft drinks

Once a day____
Once a week____
Occasionally____
Seldom____
Never____
Other, specify____

APPENDIX F

SCORING TABLE FOR TWENTY-FOUR HOUR DIET

SCORING TABLE FOR TWENTY-FOUR HOUR DIET*

To find the Twenty-four Hour Diet score:

1. Select the appropriate table (below) on the basis of the number of *milk* servings reported in Item 7, FAMILY RECORD-B (0, 1, (2) or more). NOTE: Circled numbers ((2), (4)) are the highest score possible in a food group. For number of servings larger than the circled number, use the circled number. Example, for 3 servings of milk, use the (2) MILK SERVINGS table.
2. Select the proper column of the table on the basis of the number of *meat* servings reported in Item 8.
3. Select the proper area of the table on the basis of the number of *vegetable/fruit* servings reported in Item 9 (0, 1, 2, 3, (4) or more).
4. Find the proper line of the table on the basis of the number of *bread/cereal* servings reported in Item 10.

The number to the right of this (in type style "77") is the Twenty-four Hour Diet score. Enter the diet score at the appropriate "months in program" time on the homemaker's FOOD AND NUTRITION PROGRESSION RECORD.

0 MILK SERVINGS

0 MEAT SERVINGS			1 MEAT SERVING			(2) MEAT SERVINGS		
Veg. Fruit	Bread Cereal	Score	Veg. Fruit	Bread Cereal	Score	Veg. Fruit	Bread Cereal	Score
0	0	0	0	0	3	0	0	6
	1	2		1	10		1	14
	2	4		2	12		2	17
	3	6		3	15		3	25
	(4)	8		(4)	23		(4)	29
1	0	2	1	0	10	1	0	14
	1	9		1	22		1	27
	2	11		2	25		2	35
	3	13		3	33		3	39
	(4)	21		(4)	37		(4)	43
2	0	4	2	0	12	2	0	17
	1	11		1	25		1	35
	2	13		2	33		2	39
	3	21		3	37		3	43
	(4)	25		(4)	41		(4)	47
3	0	8	3	0	15	3	0	25
	1	13		1	33		1	39
	2	21		2	37		2	43
	3	25		3	41		3	47
	(4)	29		(4)	45		(4)	60
(4)	0	8	(4)	0	23	(4)	0	29
	1	21		1	37		1	43
	2	25		2	41		2	47
	3	29		3	45		3	60
	(4)	33		(4)	58		(4)	65

1 MILK SERVING

0 MEAT SERVINGS			1 MEAT SERVING			(2) MEAT SERVINGS		
Veg. Fruit	Bread Cereal	Score	Veg. Fruit	Bread Cereal	Score	Veg. Fruit	Bread Cereal	Score
0	0	3	0	0	11	0	0	16
	1	10		1	24		1	29
	2	12		2	27		2	37
	3	15		3	35		3	41
	(4)	23		(4)	39		(4)	45
1	0	10	1	0	24	1	0	29
	1	22		1	42		1	52
	2	25		2	50		2	56
	3	33		3	54		3	60
	(4)	37		(4)	58		(4)	64
2	0	12	2	0	27	2	0	37
	1	25		1	50		1	56
	2	33		2	56		2	62
	3	37		3	60		3	66
	(4)	41		(4)	64		(4)	79
3	0	15	3	0	35	3	0	41
	1	33		1	54		1	60
	2	37		2	60		2	66
	3	41		3	64		3	79
	(4)	45		(4)	77		(4)	85
(4)	0	23	(4)	0	39	(4)	0	45
	1	37		1	58		1	64
	2	41		2	64		2	79
	3	45		3	77		3	85
	(4)	58		(4)	82		(4)	91

(2) MILK SERVINGS

0 MEAT SERVINGS			1 MEAT SERVING			(2) MEAT SERVINGS		
Veg. Fruit	Bread Cereal	Score	Veg. Fruit	Bread Cereal	Score	Veg. Fruit	Bread Cereal	Score
0	0	6	0	0	16	0	0	21
	1	14		1	29		1	39
	2	17		2	37		2	43
	3	25		3	41		3	47
	(4)	29		(4)	45		(4)	51
1	0	14	1	0	29	1	0	39
	1	27		1	52		1	58
	2	35		2	56		2	62
	3	39		3	60		3	66
	(4)	43		(4)	64		(4)	80
2	0	17	2	0	37	2	0	43
	1	35		1	56		1	62
	2	39		2	62		2	68
	3	43		3	66		3	82
	(4)	47		(4)	79		(4)	88
3	0	25	3	0	41	3	0	47
	1	39		1	60		1	66
	2	43		2	68		2	82
	3	47		3	79		3	88
	(4)	60		(4)	85		(4)	94
(4)	0	29	(4)	0	45	(4)	0	51
	1	43		1	64		1	80
	2	47		2	79		2	88
	3	60		3	85		3	94
	(4)	65		(4)	91		(4)	100

* From Munger and Jones. A Progression Model for the Expanded Food and Nutrition Education Program, 1976.

APPENDIX G

QUANTIFICATION OF THE 24-HOUR DIETARY RECALL

QUANTIFICATION OF THE 24-HOUR DIETARY RECALL

Within the milk and meat categories there are three discriminators (0, 1, 2); within the fruit/vegetable and bread/cereal categories there are a possible five discriminators (0, 1, 2, 3, 4). Thus, the number of possible combinations is calculated by:

$$C = 3 \times 3 \times 5 \times 5 = 225 \text{ combinations}$$

Derivation of Food Recall Scores

A quantification scheme which takes into account several nutrition-related factors was devised. The basic assumption is that any one food group, while it contributes in a unique way, has importance in the diet equal to that of any other food group. The factors entering into the scoring scheme and the method of quantification are described below.

✓ Total Number of Servings of Food. Intake of food is essential to life. This factor is included in the quantification with incrementally weighted scores for the number of servings, irrespective of food categories. The weighted scores are:

- 1 to 4 servings = a weight of "1" (number of servings x 1)
- 5 to 8 servings = a weight of "2" (number of servings x 2)
- 9 to 12 servings = a weight of "3" (number of servings x 3)

Any servings beyond 12 are ignored.

✓ Number of Food Groups Included. Variety of food in the diet is essential to good health. This factor is included in the quantification with incrementally weighted scores for the number of food groups, irrespective of number of servings. The weighted scores are:

- 1 food group = 0
- 2 food groups = 5
- 3 food groups = 15
- 4 food groups = 30

✓ Percent of Target Diet Achieved. The target diet is: 2 servings in the milk group, 2 servings in the meat group, 4 servings in the fruit/vegetable group, and 4 servings in the bread/cereal group. By examining each food category separately for "percent of achievement of target" and combining across all four food groups, a composite "percent of achievement of the target" of "2-2-4-4" is derived. This factor is included in the quantification by establishing incremental scores for composite percent of target diets, as follows:

QUANTIFICATION OF THE 24-HOUR DIETARY RECALL (Cont.)

25% = 1 point	175% = 10 points	325% = 23 points
50% = 2 points	200% = 12 points	350% = 26 points
75% = 3 points	225% = 14 points	375% = 29 points
100% = 4 points	250% = 16 points	400% = 32 points
125% = 6 points	275% = 18 points	
150% = 8 points	300% = 20 points	

✓ Bonus Points. Since it is possible to have a rather high cumulative composite percentage on the preceding component score basis, but to be severely deficient in one of the food groups, two (2) bonus points are awarded when at least 50% of the required number of daily servings is achieved for each food group.

Figure 6 illustrates the derivation of each component score and the resultant diet score for two food recalls.

The quantification technique described above was applied to all possible diet patterns derivable, from 0-0-0-0 to 2-2-4-4. The result was 52 categories of diet patterns and of related scores ordered from 0 to 100. Table 2 presents the scores for each of the 225 possible dietary patterns.

Example A Food Recall = 0-0-2-1		Example B Food Recall = 2-2-3-4	
Score Component	Weighted Score	Score Component	Weighted Score
Number of Servings 0 + 0 + 2 + 1 = 3 3 x 1 weight = 3	3	Number of Servings 2 + 2 + 3 + 4 = 11 11 x 3 weight of 3 =	33
Number of Food Groups 0 + 0 + 1 + 1 = 2	5	Number of Food Groups 1 + 1 + 1 + 1 = 4	30
Percent of Target Diet (0÷2)+(0÷2)+(2÷4)+(1÷4) = 0% + 0% + 50% + 25% = 75%	3	Percent of Target Diet (2÷2)+(2÷2)+(3÷4)+(4÷4) = 100% + 100% + 75% + 100% = 375%	29
Bonus Only 1 of 4 categories at 50% or greater	0	Bonus 4 of 4 categories at 50% or greater	2
Composite Score Total	11	Composite Score Total	94

Figure 6. Examples of derivation of food recall scores.

QUANTIFICATION OF THE 24-HOUR DIETARY RECALL (Cont.)

The Scoring Table for Food Recalls

Look-up of a diet score is simplified by design of a scoring table directly related to the information the aide has in the existing program record. The food recall record gives the information in the following pattern:

	Milk	Meat	Fruit Vegetable	Bread & Cereal
Total Number of Servings				

The scoring table is shown in Figure 7.[b] Each food group, in the order in which it appears to the aide, sequentially reduces the area of search. The number of servings in the milk group tells her whether the score is in the right, left, or middle block of the scoring table. For example, if the food recall shows 1 milk serving, the diet score is in the middle block of scores. The number of servings in the second food group tells the aide whether the score is in the first, second, or third column of the larger block. For example, if the food recall shows 1 milk serving and 1 meat serving, the score is somewhere in the middle column of the middle block. The scoring table is further subdivided so that the number of servings of fruit/vegetable and bread/cereal sequentially delimit the area of search and identifies the correct score.

The Food and Nutrition Progression Record

The function of the Food and Nutrition Progression Record within the progression model is to assemble in one place the essentials of the history of a homemaker's participation in the program. Only those elements of information of importance to ultimate decisions about the homemaker are included. The record is created incrementally from scores derived by use of the other progression tools--the Scoring Table for the 24-Hour Diet and the Scoring Table for the Food Behavior Checklist--and at the time of the sequential six-month assessments of progress.

Information about the history of the homemaker's progress is presented against a background designed to enhance its quantitative and qualitative

[b]The scoring table used in the field demonstration was laminated with heavy plastic and served also as handy ruler for plotting scores on the Progression Record.

Table 2

Summary of Scores for Twenty-four Hour Diet Patterns

(Based on 2-2-4-4 minimum number of daily serving requirements. Order is milk, meat, vegetables and fruit, bread and cereal.)

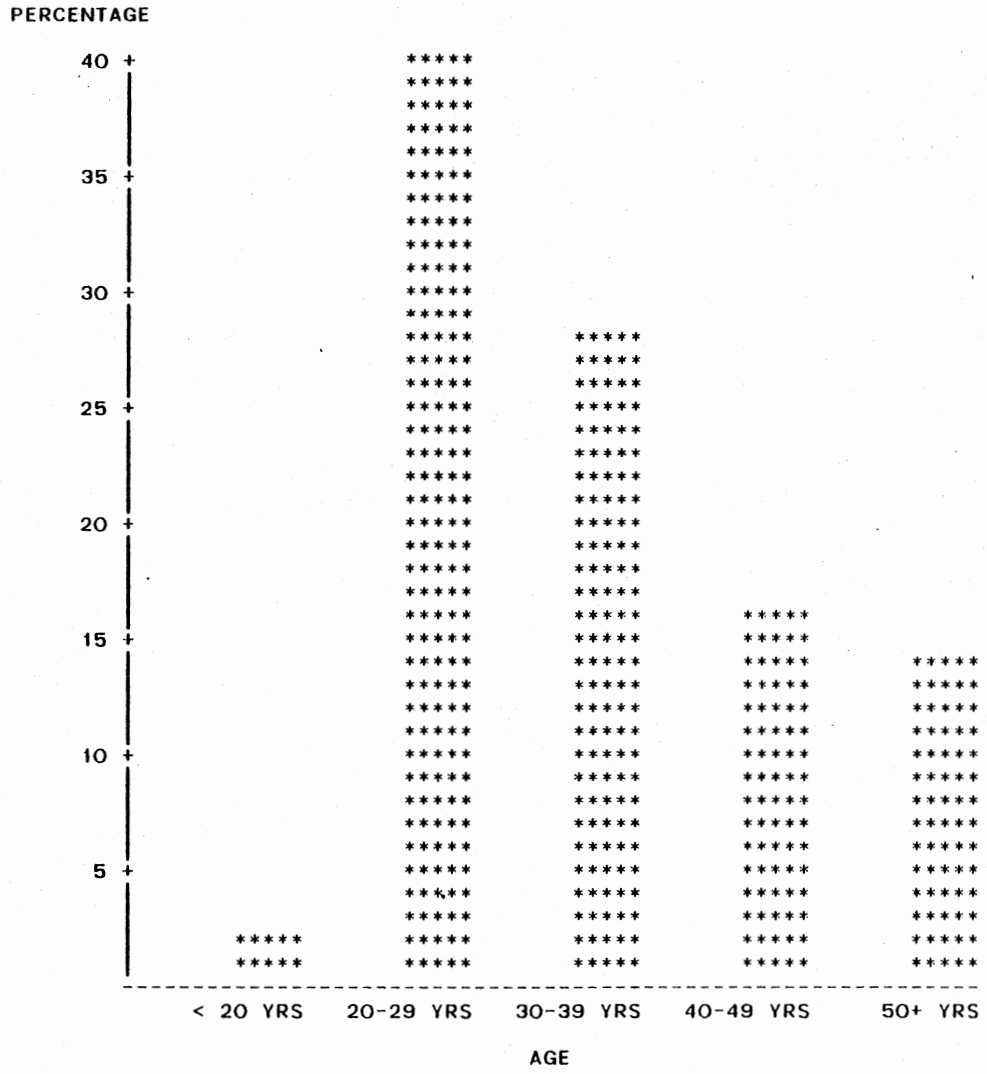
CATEGORY	SCORE	DIET PATTERNS	NO. OF DIET PATTERNS
A	0	0000	1
B	2	0001, 0010	2
C	3	0100, 1000	2
D	4	0002, 0020	2
E	6	0003, 0030, 0200, 2000	4
F	8	0004, 0040	2
G	9	0011	1
H	10	0101, 0110, 1001, 1010	4
I	11	0012, 0021, 1100	3
J	12	0102, 0120, 1002, 1020	4
K	13	0013, 0022, 0031	3
L	14	0201, 0210, 2001, 2010	4
M	15	0103, 0130, 1003, 1030	4
N	16	1200, 2100	2
O	17	0202, 0220, 2002, 2020	4
P	21	0014, 0023, 0032, 0041, 2200	5
Q	22	0111, 1011	2
R	23	0104, 0140, 1004, 1040	4
S	24	1101, 1110	2
T	25	0024, 0033, 0042, 0112, 0121, 0203, 0230, 1012, 1021, 2003, 2030	11
U	27	0211, 1102, 1120, 2011	4
V	29	0034, 0043, 0204, 0240, 1201, 1210, 2004, 2040, 2101, 2110	10
W	33	0044, 0113, 0122, 0131, 1013, 1022, 1031	7
X	35	0212, 0221, 1103, 1130, 2012, 2021	6
Y	37	0114, 0123, 0132, 0141, 1014, 1023, 1032, 1041, 1202, 1220, 2102, 2120	12
Z	39	0213, 0222, 0231, 1104, 1140, 2013, 2022, 2031, 2201, 2210	10
AA	41	0124, 0133, 0142, 1024, 1033, 1042, 1203, 1230, 2103, 2130	10
BB	42	1111	1
CC	43	0214, 0223, 0232, 0241, 2014, 2023, 2032, 2041, 2202, 2220	10
DD	45	0134, 0143, 1034, 1043, 1204, 1240, 2104, 2140	8
EE	47	0224, 0233, 0242, 2024, 2033, 2042, 2203, 2230	8
FF	50	1112, 1121	2
GG	51	2204, 2240	2
HH	52	1211, 2111	2
II	54	1113, 1131	2
JJ	56	1122, 1212, 1221, 2112, 2121	5
KK	58	0144, 1044, 1114, 1141, 2211	5
LL	60	0234, 0243, 1123, 1132, 1213, 1231, 2034, 2043, 2113, 2131	10
MM	62	1222, 2122, 2212, 2221	4
NN	64	1124, 1133, 1142, 1214, 1241, 2114, 2141	7
OO	65	0244, 2044	2
PP	66	1223, 1232, 2123, 2132, 2213, 2231	6
QQ	68	2222	1
RR	77	1134, 1143	2
SS	79	1224, 1233, 1242, 2124, 2133, 2142	6
TT	80	2214, 2241	2
UU	82	1144, 2223, 2232	3
VV	85	1234, 1243, 2134, 2143	4
WW	88	2224, 2233, 2242	3
XX	91	1244, 2144	2
YY	94	2234, 2243	2
ZZ	100	2244	1
		TOTAL	225

APPENDIX H

BACKGROUND CHARACTERISTICS OF SAMPLE HOMEMAKERS

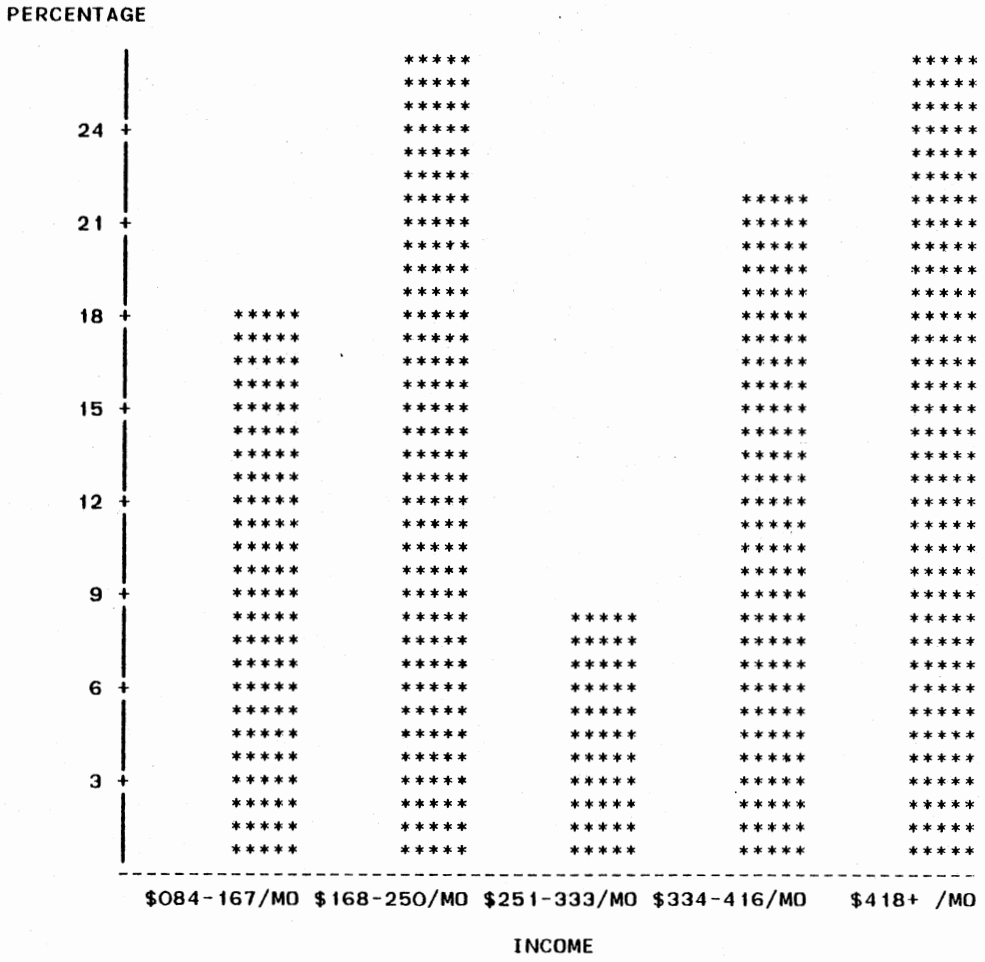
BREAKDOWN BY AGE RANGE OF THE HOMEMAKER

PERCENTAGE BAR CHART



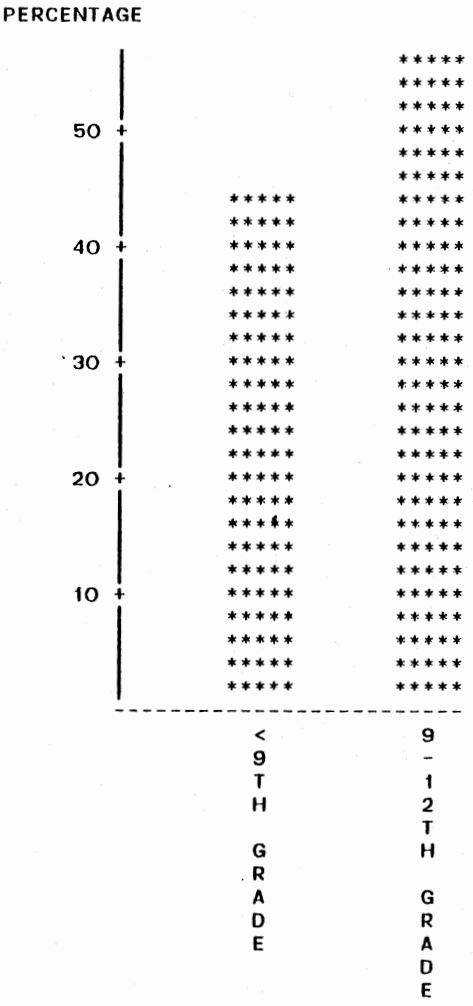
BREAKDOWN BY INCOME RANGE OF THE FAMILY

PERCENTAGE BAR CHART



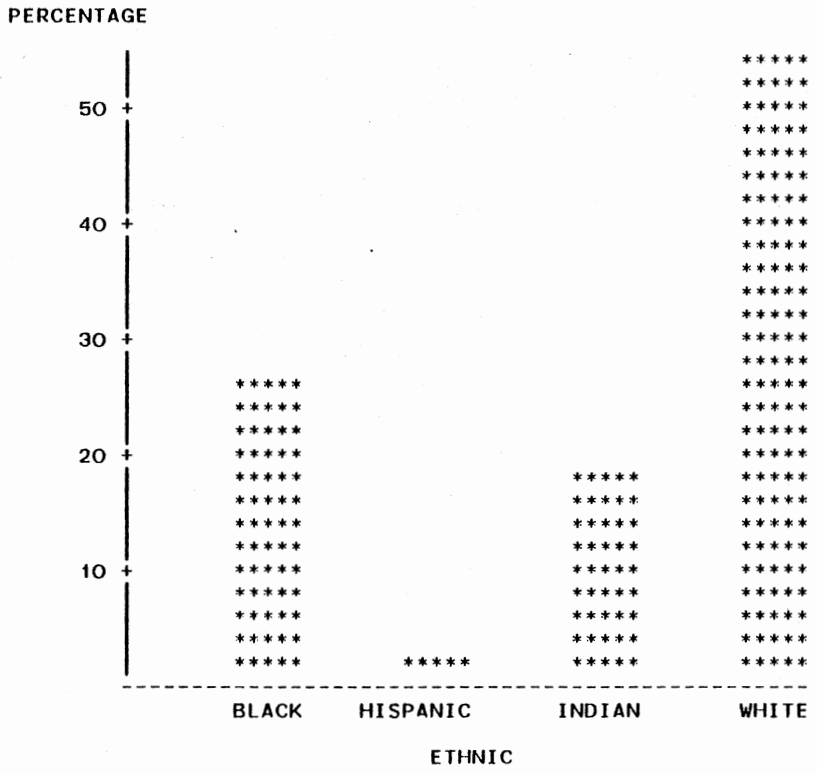
BREAKDOWN BY EDUCATION LEVEL OF THE HOMEMAKER

PERCENTAGE BAR CHART



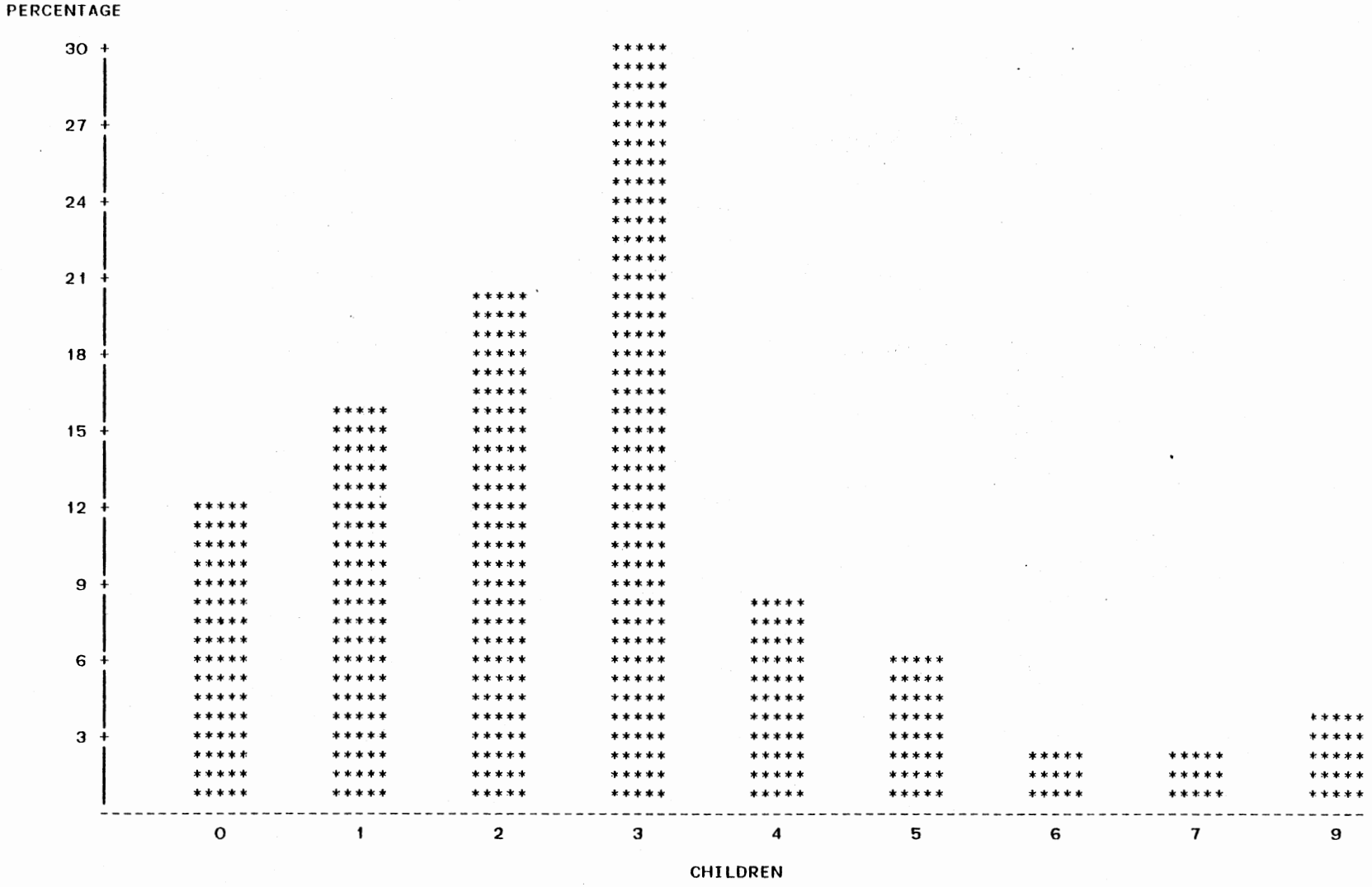
BREAKDOWN BY ETHNIC ORIGIN OF THE HOMEMAKER

PERCENTAGE BAR CHART



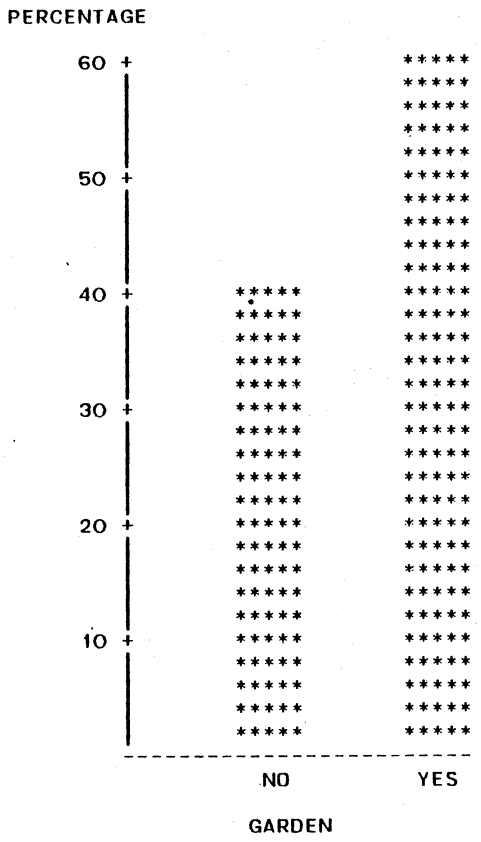
BREAKDOWN BY NUMBER OF CHILDREN IN FAMILY

PERCENTAGE BAR CHART



BREAKDOWN BY FAMILIES WITH HOME GARDENS

PERCENTAGE BAR CHART

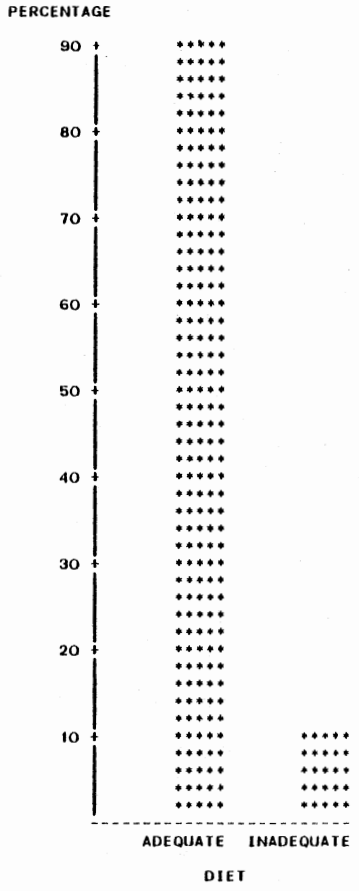


APPENDIX I

ADEQUACY OF HOMEMAKERS' DIET

BREAKDOWN OF ADEQUACY/INADEQUACY OF DIET AT END OF STUDY PERIOD

PERCENTAGE BAR CHART



APPENDIX J

SCORING STATISTICS FOR NUTRITIONAL STUDY

SCORING STATISTICS FOR NUTRITIONAL STUDY

CID	MILK_2	MEAT_2	FV_2	BC_2	SERVING	WEIGHT	SERV_SCR	GRP_SCR	MILK_P	MEAT_P	FV_P	BC_P	TOT_P	PERC_SCR	BONUS	SCORE	DIET
700	2.00	4.75	4.00	5.66	12	3	36	30	100	238	100	142	580	32	2	100	ADEQUATE
701	2.75	5.63	4.00	3.00	12	3	36	30	138	282	100	75	595	32	2	100	ADEQUATE
702	1.75	4.88	3.50	7.00	12	3	36	30	88	244	88	175	595	32	2	100	ADEQUATE
703	3.00	3.38	5.00	6.50	12	3	36	30	150	169	125	163	607	32	2	100	ADEQUATE
704	3.00	3.19	4.00	6.00	12	3	36	30	150	160	100	150	560	32	2	100	ADEQUATE
705	2.00	2.17	3.00	4.50	12	3	36	30	100	109	75	113	397	29	2	97	ADEQUATE
706	1.50	3.00	6.00	6.00	12	3	36	30	75	150	150	150	525	32	2	100	ADEQUATE
707	1.75	3.44	7.50	5.00	12	3	36	30	88	172	188	125	573	32	2	100	ADEQUATE
708	2.00	1.92	4.00	5.00	12	3	36	30	100	96	100	125	421	32	2	100	ADEQUATE
709	3.00	1.75	8.75	4.66	12	3	36	30	150	88	219	117	574	32	2	100	ADEQUATE
710	2.00	2.88	3.25	6.50	12	3	36	30	100	144	81	163	488	32	2	100	ADEQUATE
711	2.00	4.96	8.00	4.00	12	3	36	30	100	248	200	100	648	32	2	100	ADEQUATE
712	2.75	4.17	11.00	4.00	12	3	36	30	138	209	275	100	722	32	2	100	ADEQUATE
713	4.25	2.75	3.50	5.25	12	3	36	30	213	138	88	131	570	32	2	100	ADEQUATE
714	4.50	5.40	0.75	9.00	12	3	36	30	225	270	19	225	739	32	0	98	ADEQUATE
715	2.00	2.17	4.00	1.00	9	3	27	30	100	109	100	25	334	23	0	80	ADEQUATE
716	2.50	2.81	3.00	5.00	12	3	36	30	125	141	75	125	466	32	2	100	ADEQUATE
717	2.00	3.85	4.00	5.00	12	3	36	30	100	193	100	125	518	32	2	100	ADEQUATE
718	2.00	1.75	3.50	5.00	12	3	36	30	100	88	88	125	401	32	2	100	ADEQUATE
719	1.50	3.50	3.50	4.50	12	3	36	30	75	175	88	113	451	32	2	100	ADEQUATE
720	2.00	6.75	4.00	4.00	12	3	36	30	100	338	100	100	638	32	2	100	ADEQUATE
721	2.00	3.00	4.60	3.99	12	3	36	30	100	150	115	100	465	32	2	100	ADEQUATE
722	3.00	3.92	4.50	3.75	12	3	36	30	150	196	113	94	553	32	2	100	ADEQUATE
723	1.00	2.83	0.50	4.00	8	2	16	30	50	142	13	100	305	20	0	66	INADEQUATE
724	3.08	3.17	4.50	5.50	12	3	36	30	154	159	113	138	564	32	2	100	ADEQUATE
725	1.00	1.17	1.00	3.00	6	2	12	30	50	59	25	75	209	12	0	54	INADEQUATE
726	1.00	2.00	2.00	2.00	7	2	14	30	50	100	50	50	250	16	0	60	INADEQUATE
727	3.00	3.92	4.00	5.00	12	3	36	30	150	196	100	125	571	32	2	100	ADEQUATE
728	0.75	5.67	8.00	4.50	12	3	36	30	38	284	200	113	635	32	0	98	ADEQUATE
729	0.00	1.17	0.00	2.00	3	1	3	5	0	59	0	50	109	4	0	12	INADEQUATE
730	2.00	3.60	3.00	4.00	12	3	36	30	100	180	75	100	455	32	2	100	ADEQUATE
731	3.50	1.58	8.00	3.75	12	3	36	30	175	79	200	94	548	32	2	100	ADEQUATE
732	2.25	2.17	4.50	4.00	12	3	36	30	113	109	113	100	435	32	2	100	ADEQUATE
733	1.00	4.50	4.00	7.00	12	3	36	30	50	225	100	175	550	32	0	98	ADEQUATE
734	0.00	2.17	3.50	2.00	8	2	16	15	0	109	88	50	247	14	0	45	INADEQUATE
735	1.00	3.67	3.50	1.00	9	3	27	30	50	184	88	25	347	23	0	80	ADEQUATE
736	2.25	1.75	2.00	5.50	12	3	36	30	113	88	50	138	389	29	0	95	ADEQUATE
737	3.83	2.17	3.50	5.00	12	3	36	30	192	109	88	125	514	32	2	100	ADEQUATE
738	1.25	3.67	4.25	4.00	12	3	36	30	63	184	106	100	453	32	2	100	ADEQUATE
739	1.00	2.25	5.00	4.50	12	3	36	30	50	113	125	113	401	32	0	98	ADEQUATE
740	2.25	2.00	5.00	2.75	12	3	36	30	113	100	125	69	407	32	2	100	ADEQUATE
741	1.00	1.83	5.00	3.00	11	3	33	30	50	92	125	75	342	23	0	86	ADEQUATE
742	2.50	2.00	4.00	4.00	12	3	36	30	125	100	100	100	425	32	2	100	ADEQUATE
743	1.50	4.83	1.00	6.50	12	3	36	30	75	242	25	163	505	32	0	98	ADEQUATE
744	1.75	3.92	0.75	3.00	9	3	27	30	88	196	19	75	378	29	0	86	ADEQUATE
745	3.00	6.83	2.00	3.00	12	3	36	30	150	342	50	75	617	32	0	98	ADEQUATE
746	1.00	3.00	11.50	6.00	12	3	36	30	50	150	288	150	638	32	0	98	ADEQUATE
747	2.00	4.58	1.00	5.00	12	3	36	30	100	229	25	125	479	32	0	98	ADEQUATE
748	3.00	2.17	4.00	4.50	12	3	36	30	150	109	100	113	472	32	2	100	ADEQUATE
749	1.50	5.83	6.50	3.00	12	3	36	30	75	292	163	75	605	32	2	100	ADEQUATE

VITA

Janet C. Wilson Montgomery

Candidate for the Degree of

Master of Science

Thesis: THE LONG-TERM EFFECT OF THE EXPANDED FOOD AND NUTRITION EDUCATION PROGRAM ON THE DIETARY PRACTICES OF LOW-INCOME HOMEMAKERS

Major Field: Food, Nutrition and Institution Administration

Biographical:

Personal Data: Born in Curtis, Oklahoma, September 1, 1936, the daughter of Harold J. and Eleanor Wilson.

Education: Graduated from Chanute High School, Chanute, Kansas, in May, 1954; received Bachelor of Science degree in Hotel and Restaurant Administration from Oklahoma State University, College of Home Economics, in 1961; completed requirements for the Master of Science degree in Food, Nutrition and Institution Administration at Oklahoma State University, College of Home Economics, in July, 1983.

Professional Experience: Food Production Manager, McElroy Dining Room, Oklahoma State University, 1959-61; Manager, Winfield Country Club, Winfield, Kansas, 1961-62; Manager Besse Hotel Company, Pittsburg, Kansas, 1962-64; Food Manager, Holiday Inn, San Angelo, Texas, 1964-66; Tri-County Supervisor Manpower Training Program, Oklahoma Welfare Department, 1966-69; Extension Home Economist, Oklahoma State University, 1969-1975; County Extension Director, 1975 to present.

Professional Organizations and Honors: Oklahoma Association of Extension Home Economists, National Association of Extension Home Economists, American Home Economic Association, Oklahoma Home Economic Association, Omicron Nu, Epsilon Sigma Phi.