To the Graduate Council:

I am submitting herewith a thesis written by Amelia M. Haynes entitled "Influence of the Number of Home Visits EFNEP Homemakers in Lincoln County, Tennessee, Received from Program Assistants and the Characteristics of the Homemakers Upon Their Dietary Adequacy." I have examined the final copy of this thesis for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Science, with a major in Agricultural Extension.

Cecil E. Carter, Jr., Major Professor

We have read this thesis
and recommend its acceptance:

Accepted for the Council:

The Graduate School

INFLUENCE OF THE NUMBER OF HOME VISITS EFNEP HOMEMAKERS IN LINCOLN COUNTY, TENNESSEE, RECEIVED FROM PROGRAM ASSISTANTS AND THE CHARACTERISTICS OF THE HOMEMAKERS UPON THEIR DIETARY ADEQUACY

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ABSTRACT

This study investigated the influence of personal and family characteristics of homemakers upon the number of home visits homemakers received from program assistants and upon the adequacy of homemakers' diets. The influence of home visits upon the adequacy of homemakers diets also was studied.

The population studied was all homemakers in Lincoln County Tennessee who had been enrolled for two years or more in the Expanded Foods and Nutrition Program (EFNEP). The sample included 100 homemakers.

Data were obtained from records maintained on each family in files of the Lincoln County Agricultural Extension Office. Oneway analysis of variance, Chi Square and the t-test were used to determine the significance of relationships. The 0.05 probability level was used to accept or reject null hypotheses.

The data indicated that personal and family characteristics of homemakers did influence the number of home visits homemakers received from program assistants. However, little evidence was found to indicate that the adequacy of homemakers diets was influenced by characteristics of the homemaker or the family situation. Regarding characteristics of the homemakers and the family, as to the number of home visits received from program assistants, the study indicated that homemakers who lived in government housing, those who received food stamps, those who had less education and who were black, generally received fewer visits.

However, differences were considered minor and often were not statistically significant at the 0.05 proability level.

The number of home visits received by homemakers, their personal or family characteristics generally did not seem to have a significant influence upon the adequacy of homemakers diets. A significant number of homemakers did make improvements in their diets during the two years enrolled in the EFNEP. However, after two years in the program, the diets of a high percentage of the homemakers appeared to be inadequate in one or more of the four food groups. Homemakers made most improvements in the fruits and vegetables group and the breads and cereals group. This latter group also appeared to be the one where the largest proportion of the homemakers needed to make the greatest amount of improvement in their diets. This study seemed to suggest a strong need among EFNEP homemakers to continue to improve their diets after completing two years in the program. However, little evidence was found to indicate that extending the length of time homemakers remained in the EFNEP was desirable.

Conclusions, implications and recommendations also were made.

TABLE OF CONTENTS

CHAPTER		PAGE
I.	INTRODUCTION.	1
	Background and Problem.	1
	Need For The Study.	3
	Purposes And Objectives Of The Study.	3
	Limitations Of The Study.	4
	Definition Of Terms	4
	Methods And Procedures.	5
II.	RELATED STUDIES	8
	24 Hour Food Recall	8
	Family And Personal Characteristics Of Homemakers . .	10
	Total Time Spent In EFNEP Program And Nutrition Practices	21
III.	INFLUENCES OF HOME VISITS BY PROGRAM ASSISTANTS UPON HOMEMAKERS' DIETARY ADEQUACY.	25
	Relationships Between The Total Number Of Home Visits Homemakers Received From Program Assistants Over A 30-Months Time Period and Family Characteristics Of The EFNEP Homemakers.	26
	Relationships Between The Number Of Home Visits EFNEP Homemakers Received From Program Assistants By 6-Months Time Periods And Family Characteristics Of Homemakers	31
	Relationships Between Total Number Of Home Visits Homemakers Received From Program Assistants Over A 30-Months Time Period And Personal Characteristics Of The EFNEP Homemakers	36
	Relationships Between The Number Of Home Visits EFNEP Homemakers Received From Program Assistants By 6-Months Time Periods And Personal Characteristics Of Homemakers	39
	Relationships Between The Total Number Of Home Visits Homemakers Received From The Program Assistants And The Total Number Of Food Servings From Four Food Groups Consumed By EFNEP Homemakers At First And Last Food Recalls.	43
	Relationships Between The Number Of Home Visits Homemakers Received From Program Assistants And Whether Or Not The Homemakers Consumed The Recommended Number Of Food Servings From Each Of Four Groups At The End Of Each Of Five Time Periods.	46

CHAPTER PAGE

IV. CHANGES IN MEAN NUMBER OF SERVINGS CONSUMED FROM EACH OF FOUR FOOD GROUPS AT SELECTED TIME PERIODS IN RELATION TO HOMEMAKERS' CHARACTERISTICS 53
Relationships Between Mean Number Of Servings Homemakers Consumed From Each Of Four Food Groups Upon Entering The EFNEP Program And Their Family Characteristics. 55
Relatiomships Between Mean Number Of Servings Homemakers Consumed From Each Of Four Food Groups Upon Entering The EFNEP Program And Their Personal Characteristics. 60
Relationships Between Mean Number Of Servings Homemakers Consumed From Each Of Four Food Groups On The Last Food Recall And Their Family Characteristics 63
Relationships Between Mean Number Of Servings Homemakers Consumed From Each Of Four Food Groups On The Last Food Recall And Their Personal Characteristics. 68
Relationships Between The Total Number Of Food Servings From Four Food Groups Consumed By EFNEP Homemakers At The First And Last Food Recalls And Their Family Characteristics 71
Relationships Between The Total Number Of Food Servings From Four Food Groups Consumed By EFNEP Homemakers At The First And Last Food Recalls And Their Personal Characteristics 76
Mean Number Of Food Servings From Each Of Four Food Groups Consumed By EFNEP Homemakers At First Food Recall Compared With Later Food Recalls. 79
Relationships Between Whether Or Not Homemakers Consumed The Recommended Number Of Food Servings From Each Of Four Food Groups At The First And Last Food Recalls 84

V. SUMMARY OF MAJOR FINDINGS, IMPLICATIONS, AND RECOMMENDATIONS. 89
Purpose. 89
Methods of Procedures. 90
Major Findings 91
Implications, Conclusions and Recommendations. . . . 106
Recommendations For Further Studies. 109

BIBLIOGRAPHY 110

APPENDIX 113

VITA 116

LIST OF TABLES

TABLE		PAGE
I.	Relationship Between The Total Number Of Home Visits Homemakers Received From Program Assistants Over A Thirty Months Time Period And Family Characteristics Of The EFNEP Homemakers.	27
II.	Relationships Between The Number Of Home Visits EFNEP Homemakers Received From Program Assistants By Six Months Time Periods And Family Characteristics Of Homemakers.	32
III.	Relationships Between Total Number Of Home Visits Homemakers Received From Program Assistants Over A Thirty Months Time Period And Personal Characteristics Of The EFNEP Homemakers.	37
IV.	Relationships Between The Number Of Home Visits EFNEP Homemakers Received From Program Assistants By Six Months Time Periods And Personal Characteristics Of Homemakers	40
V.	Relationships Between The Total Number Of Home Visits Homemakers Received From Program Assistants And The Total Number Of Food Servings From Four Food Groups Consumed By EFNEP Homemakers At First And Last Food Recalls	44
VI.	Relationships Between The Number Of Home Visits Homemakers Received From Program Assistants And Whether Or Not The Homemakers Consumed The Recommended Number Of Food Servings From Each Of The Four Food Groups At The End Of Each Of Five Time Periods. .	47
VII.	Relationships Between Mean Number Of Servings Homemakers Consumed From Each Of Four Food Groups Upon Entering The EFNEP Program And Their Family Characteristics.	56
VIII.	Relationships Between Mean Number Of Servings Homemakers Consumed From Each Of Four Food Groups Upon Entering The EFNEP Program And Their Personal Characteristics.	61

TABLE		PAGE
IX.	Relationships Between Mean Number Of Servings Homemakers Consumed From Each Of Four Food Groups On The Last Food Recall And Their Family Characteristics.	64
X.	Relationships Between Mean Number Of Servings Homemakers Consumed From Each Of Four Food Groups On The Last Food Recall And Their Personal Characteristics.	69
XI.	Relationships Between The Total Number Of Food Servings From Four Food Groups Consumed By EFNEP Homemakers At The First And Last Food Recalls And Their Family Characteristics.	72
XII.	Relationships Between The Total Number Of Food Servings From Four Food Groups Consumed By EFNEP Homemakers At The First And Last Food Recalls And Their Personal Characteristics	77
XIII.	Mean Number Of Food Servings From Each Of Four Food Groups Consumed By EFNEP Homemakers At First Food Recall Compared With Later Food Recalls.	80
XIV.	Relationships Between Whether Or Not Homemakers Consumed The Recommended Number Of Food Servings From Each Of Four Food Groups At The First And Last Food Recalls	85

CHAPTER I

INTRODUCTION

I. BACKGROUND AND PROBLEM

The Expanded Food and Nutrition Education Program (EFNEP) is funded and administered by the Science and Education Administration of the United States Department of Agriculture and is carried out by the Cooperative Extension Service in each state (1:21).*

A pilot program initiated in 1964 by the Federal Extension Service in cooperation with the Alabama Extension Service used paraprofessionals to teach nutrition to low-income homemakers in four counties (10:478). The pilot program proved successful and the Expanded Food and Nutrition Education Program went into other states by 1968. In 1969 the program existed in all 50 states, the District of Columbia, Puerto Rico, and the Virgin Islands. It became a part of the Cooperative Extension Service at this time.

The Expanded Food and Nutrition Education Program started in Tennessee in 10 counties as pilot programs in 1968. The

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*Numbers in parentheses refer to alphabetically listed references in the Bibliography; those after the colon refer to page numbers.

following year 10 more counties were added and by 1971 the program was started by 20 more counties. Presently Tennessee has 32 EFNEP counties with 28 counties also conducting the Youth phase--Special Program in Food for Youth (SPIFFY).

Since its beginning in 1969, more than 1.5 million low-income families have participated in EFNEP nationally. Emphasis is placed on enrollment of homemakers with young children (1:21).

The Expanded Food and Nutrition Education Program has several purposes which include teaching low-income families to improve their diets through increased knowledge of nutrition, increase ability to select and buy food, increase use of food storage and sanitation practices and increase food preparation skills.

In 1979, approximately 449,000 American families participated in EFNEP. Seventy three percent of these families had an annual income less than $5000. Minorities made up 61 percent of the total and 39 percent of the EFNEP homemakers had an eighth grade education or less. The average family size was 3.9 persons (1:22).

The present study analyzes the relationship between dietary adequacy of EFNEP homemakers in Lincoln County, Tennessee and the number of home visits made by Program Assistants to EFNEP homemakers. Also the relationships between dietary adequacy of EFNEP homemakers in Lincoln County and their family and personal characteristics were studied. Income, age, education, social status and general background are some characteristics that may

influence the adoption of nutritional practices by homemakers (1:18). Increased knowledge about influence of characteristics of homemakers upon their use of recommended nutrition practices should help Extension Agents to implement more effective educational programs.

II. NEED FOR THE STUDY

Although other studies have characterized EFNEP homemakers and related their characteristics to indicators of dietary adequacy, the relationships between dietary adequacy and the number of home visits homemakers received from Program Assistants had not been studied in Tennessee. It was felt that increased knowledge about the effectiveness of home visits would help to identify ways to improve the EFNEP program in Lincoln County.

III. PURPOSES AND OBJECTIVES OF THE STUDY

The purpose of this study was to show the relationship between the number of food servings from each of four food groups consumed by homemakers over a 30-months time period and their personal and family characteristics. In addition, the number of home visits received by homemakers from Program Assistants in relation to diet adequacy and personal and family characteristics was analyzed over a 30-months time period.

The specific objectives of this study were:

1. To determine the relationships between the number of home visits EFNEP homemakers received from Program

Assistants over a 30-months time period and the number of food servings homemakers consumed from four food groups.

3. To determine the relationships between the number of food servings from each four food groups consumed by homemakers over a 30-months time period and selected personal and family characteristics of EFNEP homemakers.

IV. LIMITATIONS OF THE STUDY

The study was limited to EFNEP homemakers in Lincoln County, Tennessee who had been in the program for 30 months. The study was limited to two dependent variables and nine independent variables. One dependent variable was the number of food servings consumed by homemakers; the other dependent variable was the number of home visits received by EFNEP homemakers from Program Assistants. Independent variables included: places of residence, whether or not the families were on welfare, received food stamps, had home gardens, family income, whether or not an adult male was in home, homemakers' education, race of homemaker, and whether or not families owned or rented their home.

V. DEFINITION OF TERMS

Adequate Diet - An adequate diet consists of two or more daily servings from each of the milk and meat groups and four or more servings from each of the breads and cereals and vegetables and fruits groups.

EFNEP - Expanded Food and Nutrition Education Program for low income families directed by the Agricultural Extension Program.

EFNEP Extension Agent - A professional home economist employed by the Extension Service to develop and implement the Expanded Food and Nutrition Education Program in a county.

EFNEP Homemaker - A person enrolled in the Expanded Food and Nutrition Education program under the direction of the Tennessee Agricultural Extension Service.

Food Groups - The food groups studied are the milk, meat, fruit-vegetable and breads-cereals groups.

Food Recall - A record of foods eaten by a homemaker during the last 24-hour period taken at enrollment at 6 months intervals thereafter. The Program Assistant takes this information from the homemaker on a home visit. All meals, snacks and beverages are included for the previous 24 hour time period.

Program Assistant - A paid paraprofessional employed by the Extension Service to teach nutrition related information to low-income families.

VI. METHODS AND PROCEDURES

This section describes the methods and procedures used to obtain data and analyze the relationships between diet adequacy of EFNEP homemakers and their personal and family characteristics as well as to the effect of the number of home visits made by Program Assistants to EFNEP homemakers upon dietary adequacy.

Population and Sampling

The population and sample included all Lincoln County homemakers who had been enrolled in the EFNEP program for 30 months or more. One hundred EFNEP homemakers met this requirement and were included in the study. Data for each homemaker were taken from the Lincoln County Extension Office files.

The Data

Data were coded and recorded from six family record forms in each homemaker's file. The record forms included the following types of data.

1. Family Record--Part A. This included a description of family names, ages, and sex. The initial enrollment date, address, education level, place of residence and information about participation in selected governmental programs designed to assist low income families also were included on each family record.
2. Family Record--Part B. The part of the family record included food consumption, family income and the number of the food record taken to reflect homemaker's length of enrollment.

Food Recall Procedure

The food recall was an evaluation device used to determine the nutritional adequacy of EFNEP homemakers in the program. The first food recall was completed upon enrollment in the program and repeated each 6 months, thereafter Program Assistants recorded

the kinds and amount of food that the homemakers reported consuming over the previous 24 hours.

The EFNEP Agent evaluated the food recalls according to four food groups in terms of an adequate diet. Two servings each from the milk and meat food groups and four servings each from the fruits/vegetables and breads/cereals food groups are the terms used to define an adequate diet.

Analysis of Data

Data from the family record forms was recorded on code sheets. Information from the code sheets was punched on data cards for statistical analysis by the University of Tennessee Computer Center.

Frequency counts were used to describe the homemakers and the one-way analysis of variance F-tests was used to determine the relationships between personal and family characteristics of EFNEP homemakers and the mean number of food servings consumed from the four groups as well as the number of home visits made to EFNEP homemakers.

The Chi Square test was used to compare the adequacy of homemakers diet at the first and last recall time period. The .05 probability level was accepted as significant.

CHAPTER II

RELATED STUDIES

Studies related to the influence of selected personal and family characteristics of EFNEP homemakers upon the adequacy of homemakers' diets will be reported in this chapter. Also, Section I presents an overview of the use of 24 hour food recalls as an indicator of dietary adequacy.

I. 24 HOUR FOOD RECALL

The 24 Hour Food Recall is the method used to determine diet adequacy of EFNEP homemakers. It requires EFNEP Program Assistants to interview EFNEP homemakers about the kind and amount of foods and beverage consumed over the previous 24 hours. The food consumption is evaluated in terms of four food groups (milk, meat, fruits-vegetables, and breads and cereals).

According to Wilson and others (19:351), four major procedures are available to use to evaluate the dietary habits of people. These include the dietary history, the 24 hour food recall, the dietary record and weighed dietaries. Data about patterns of food consumption over a period of time is a dietary history. In the 24 hour food recall interviews, individuals describe all of the food consumed over the previous 24 hour period. A dietary record is a written account of the kind and amount of food consumed by individuals over a period of time. A weighed dietary is a procedure which weighs all the food eaten over a period of time.

In food intake studies, according to Madden (7:33) inaccuracies may result when food intake is either small or extremely large. Madden stressed that the interview should be done when the individual has no knowledge of it prior to the interview.

Robert E. Frye (4:26) of the Economic Research Service pointed out some of the limitations to the evaluation of nutritional status of individuals using the 24 hour food recall. The food recall gives only the number of servings for a 24 hour period; there is no exact quantity of food measured on the food recall. Differences in the nutrient value of foods within each food group cannot be reported on the 24 hour food recall.

Madden (7:31) reported 50 studies between 1950 and 1967 showed a consistency between the results of nutritional intake studies and biochemical studies for assessment of nutritional status of individuals.

Since the Expanded Food and Nutrition Education Program has a large number of participants the 24 hour food recall was chosen as the most efficient method to evaluate food consumption.

Datagraphics (2:6-7) was one of the first national evaluations of EFNEP for the USDA. Seven states, Alabama, California, Illinois, New Jersey, Texas, Washington and West Virginia were involved in the evaluation. The study reported inadequate diets in all of the major food groups, except the meat group. The meat group showed homemakers had more than adequate servings. Three months later, a second food recall

was taken. All three of the deficient groups improved; the milk and the vegetables and fruits groups showed significant improvements.

II. FAMILY AND PERSONAL CHARACTERISTICS OF HOMEMAKERS

Family and Personal Characteristics were used in a number of studies to determine the effect these characteristics had on selected dependent variables regarding dietary adequacy. Families characteristics reported in the following review are: place of residence, families on welfare, families on food stamps, families with home gardens and family income. Personal characteristics reviewed below are adult male in home, education of homemaker, home ownership and race.

Place of Residence

Quillen (11:81-82) in her study of EFNEP found that rural homemakers seemed to show more benefit from participating in EFNEP than urban or rural non-farm homemakers. Rural homemakers reported a higher number of milk servings than rural non-farm and urban homemakers. Urban homemakers consumed the lowest number of servings.

Seiders (13:46-48) in his study of EFNEP reported rural homemakers had more adequate intakes of milk than rural non-farm or urban homemakers. Urban homemakers, however, made the greatest change in milk intake from the initial to the last food recall.

Jones in his study of the Expanded Food and Nutrition Education Program in Louisiana (6:24-25) reported that rural

homemakers made the most change in their milk intake from the initial to the last food recall at the end of an 8-week program. Urban homemakers made the least change.

Urban homemakers in Quillen's study (11:82) reported the highest number of meat servings with the exception of one food recall. Seiders (13:48) found only a slightly higher percent of urban homemakers had adequate servings of meat. Jones (6:27) found that rural non-farm homemakers made the greatest change in adequate number of meat servings.

Quillen (11:81-82) reported rural homemakers had a higher number of vegetables-fruits servings except for one food recall than rural non-farm or urban homemakers. Seiders (13:48) showed all residence groups made very significant improvement from the initial to the last food recall. The most significant improvement was made by the rural homemakers.

Jones (6:25,28) reported that a low percent of all residence groups received adequate servings from the vegetables-fruits group. Rural and urban homemakers had the highest percentage intake changes; 10 percent of the rural homemakers on the first food recall had adequate servings and 28 percent of them had adequate servings on the last food recall. Urban homemakers reported 8 percent on the first food recall and 26 percent on the last food recall for vegetables-fruits group. Rural non-farm homemakers had 6 percent adequate servings on the first food recall and 18 percent on the last food recall.

Quillen (11:82) reported farm homemakers made the most improvement in the number of adequate servings from the initial to the fifth food recall except in the vegetables-fruits group. Urban homemakers made the greatest change in the number of servings consumed from the vegetables-fruits group from the initial to the fifth food recall.

There was no significant relationship between place of residence and the number of servings consumed from the breads and cereals food group according to the study by Quillen (11:81).

Seiders (13:49) reported a lower percentage of urban homemakers had adequate number of servings from the breads and cereals group, however, they made the most improvement from the initial to the latest food recall in the number of adequate servings consumed from this food group.

Families on Welfare

Quillen (11:86-87) found that homemakers on welfare consumed more servings from the milk and breads and cereals food groups than non welfare homemakers. However, more non welfare homemakers had adequate servings from the vegetables and fruits and meat food groups. Welfare homemakers reported a more positive change in the number of servings consumed from each food group than non welfare homemakers.

Seiders (13:119-120) in his study found welfare homemakers made significant improvements in the milk and the vegetables-fruits group. Overall, however, welfare homemakers had the lower percentage of adequate food servings from each food group.

Families on Food Stamps

In 1961, a pilot Food Stamp Program was begun (10:21). The qualifying families received stamps below their face value; the stamps could be used to purchase food at cooperating supermarkets. Food Stamp participants could choose food to suit their needs, cultures, and preferences.

Madden in his study in Pennsylvania (7:1) reported diets of families on the Commodity Distribution Program were not better than nonparticipating families of the same socioeconomic conditions.

Madden (7:3) found that a high proportion of the food stamps was spent on non-food items.

Nelson (9:1), however, reported food stamps participants purchased more meat, poultry, fish, vegetables and fruits than non-food stamp participants. Maruyama (8:4) reported EFNEP homemakers on food stamps had a more balanced diet than EFNEP homemakers not on food stamps. Before participating in EFNEP, food stamp homemakers were at the same dietary level as non-food stamp families. It was found that homemakers responded better to both EFNEP and food stamp programs in terms of a more adequate diet.

Quillen (11:82-84) reported evidence that EFNEP homemakers made more improvement in the number of servings consumed for each food group than non-food stamp EFNEP homemakers. Food stamp homemakers showed a greater need for increasing their intake of milk and vegetables-fruits than non-food stamp homemakers.

Families with Home Gardens

The 1977-78 U.S. Department of Agriculture's Nationwide Food Consumption Survey (17:4) implies that rural homemakers have better diets and usually pay less for food than urban families. Home gardens and local farmers' markets contribute to this finding.

Madden (7:15) reported low income food stamp and commodity food recipients with home gardens had much better diets than families who did not have a garden.

Seiders (13:14) reported a very significant relationship between the number of adequate servings of vegetables and fruits on the initial food recall and the latest food recall among homemakers with home gardens. Homemakers with home gardens made very significant improvements in the vegetables-fruits group.

Number of Family Members

In his study, Seiders (13:116-117) found the only significant relationship between the number of family members and diet adequacy was in the breads and cereals group on the initial food recall. Homemakers with a family of over five members had the highest percentage of adequate servings from the breads and cereals group. These homemakers also had very significant improvements in the number consuming adequate servings from the vegetables-fruits group. Those homemakers who lived alone had no significant improvement from the initial to the latest food recall. Homemakers with two to three family members had very significant improvements in the milk and vegetables-fruits groups as well as a significant improvement in the breads and cereals group.

Madden (7:15) reported family size was important to dietary adequacy. Families with five to six members had the most adequate diets.

Adult Male Present in the Household

Quillen (11:87) reported no significant relationship between diet adequacy in each food group and the presence of an adult male in the household. During the study, the most progress for households with adult males present occurred in the meat and the vegetables-fruits group. Those households without adult males present may have had less income to buy more of the expensive foods.

Seiders (13:118) found that the number of adequate servings of milk on the initial food recall was greater for households with an adult male present. Additionally, these homemakers with adult males present in the household had an increased number consuming adequate servings in all food groups.

Education of Homemaker

Quillen (11:88-89) reported homemakers with less than an eighth grade education had consumed the least number of adequate servings in each food group. Homemakers with eighth through twelfth grades education had the most intake of breads and cereals servings. Homemakers with an education beyond high school had more adequate servings from the milk, meat, and the vegetables-fruits groups. All education levels of homemakers reported an improvement in their consumption for all food groups. The number of servings consumed

from the meat group (second, third and fourth food recall), vegetables-fruits (initial, third and fifth food recalls), and breads-cereals group (second and fourth food recalls) was highly related to the education level of the homemakers.

Seiders (13:111-112) reported that homemakers with an education of eighth grade or more had a lower pecent of adequate servings from the milk and the vegetables-fruits groups on the initial food recall. These homemakers increased the number of adequate servings from the initial to the latest food recall in all food groups, except the meat group. Homemakers with less than an eighth grade education increased their number of adequate servings of meat from the initial to the latest food recall. Findings showed homemakers with an education level above eighth grade had the most potential to improve.

Jones in his evaluation of an eight week program in EFNEP (6:25-28) reported these findings concerning the education of the homemaker and the adequacy of the homemakers' diet.

1. Homemakers with no formal education had the greatest percentage increase between the initial and the latest food recall of adequate servings of milk (19 percent to 52 percent). Homemakers with the most formal education went from 44 percent of these homemakers on the initial food recall having adequate milk servings to 65 percent of the homemakers having adequate milk servings on the latest food recall.

2. There was little relationship between education and diet adequacy in the meat group. Initially 90 percent of the homemakers with no formal education had adequate servings. Eighty-five percent of these homemakers had adequate servings of meat on the latest food recall.
3. Homemakers with less formal education were least likely to make changes in the number of adequate servings of vegetables and fruits group than those with more education.
4. The greatest change in percentage of homemakers with adequate servings of breads and cereals occurred with the homemakers with less formal education.

Wilson and other (19:343) found the education level of homemakers to be significantly related to diet adequacy. When income level and education level of the homemakers was compared, the educational level influenced diet adequacy. Within an income bracket, the homemaker's diet was more adequate with the greater number of year of formal education.

Mayuyama (8:6) found the educational level of EFNEP participants influenced their food behavior. A higher percentage of homemakers with education beyond high school had balanced diets (37 percent) than homemakers with an education of eighth grade or less (18 percent). Homemakers with an education beyond high school had a peak score in 18 months in comparision to homemakers with an education of eighth grade or less in 30 months.

Home Ownership

Seiders (13:114-115) reported a definite relationship between home ownership and diet adequacy. For all food groups where changes in increased servings occurred, homemakers who owned their homes had a higher percentage of adequate servings than renters. Homemakers who rented made significant improvements in adequate servings from initial to the latest food recall in all food groups except the meat group. Homemakers who owned their homes made significant improvements in the milk and vegetables-fruits groups.

Ethnic Background

Quillen (11:89-90) found black homemakers made greater improvement in the number of servings consumed from each food group than did white homemakers. White homemakers consumed more milk servings on the first three recalls. In the meat group both groups of homemakers consumed more than the adequate number of servings. However, black homemakers consumed more meat servings than white homemakers. Ethnic background did not influence the number of servings from the vegetables-fruits group and breads-cereals groups.

Seiders (13:67-68) reported that white homemakers had more adequate servings from all of the food groups except meat than black homemakers. Black homemakers had more adequate intakes of meat than white homemakers.

Black homemakers made greater improvement from the initial

to the latest food recall in the number of adequate servings of all food groups, except meat. White homemakers made very significant improvements in the vegetables-fruits group and a significant improvement in the milk group.

Wang and Ephross (18:14-15) in their study of the EFNEP found black homemakers had a tendency to report less adequate diets than white homemakers.

Salathe and co-workers (12:9) found black homemakers spend more per individual and ate more beef, pork, poultry, fish and seafood. They ate less of cereal and bakery products, dairy products, fresh fruits and vegetables, processed fruits, sugar and other sweets, fats, oils and non-alcholic beverages.

Maruyama (8:7) in his study of Kentucky homemakers on the effect of nutrition education on food behavior reported ethnic background did not appear to be an influence on diet adequacy of the homemaker.

Family Income

Seiders (13:124) found that the level of income alone was not a good indicator of families with poor diets. Homemakers with yearly incomes under $3000 (13:115-116) made very significant changes in the number of adequate servings in all food groups, except the meat group from the initial to the latest food recall. Families with incomes of $3000 or more made significant improvements in the number of adequate servings of milk and very significant improvements in the number of adequate servings in the vegetables and fruits groups.

According to the 1977-78 U.S.D.A. Nationwide Food Consumption Survey (5:3-5), income is considered important to food consumption of households. The lowest income group (representative of 3 percent of the total U.S. population), which is several million people, reported they did not always have enough to eat.

Average money value of food used at home per person in 1977 was only 20 percent higher for the highest income group than for lowest income group. Compared to the 1965 Food Consumption Survey, less of the food dollar in 1977 went to certain food like eggs, dry legumes, nuts, fats, oils, sugar, jelly, and candy. More of the food dollar wnt to soft drinks, punches and prepared desserts. On the other hand, lower income families used a higher percentage of their income to buy foods like eggs and dry legumes then than the higher income levels. The higher the income the more the food dollar went to alcoholic beverages and the milk, cream, and cheese group. The percentage of the food dollar of incomes spent on food away from home increased from 17 percent in 1965 to 24 percent in 1977. The lowest income group (under $5000) spent only 14 percent of the total food dollar on food away from home in comparison to the highest income group $20,000 or more), which spent 29 percent of its total food dollar on eating away from home, (5:2). Overall, households at different income levels used quantities of the various food groups which were more alike in 1977 than 1965 (3:5-6). The use of foods from the milk and the breads and cereals groups by the lower income group decreased.

However, the consumption of foods such as meat, poultry, fish beans, vegetables and fruits increased in the low income group.

Jones (6:24-28) found that families with the lowest income had a lower diet adequacy in the milk group during the eight week program. Twenty seven percent of the homemakers with less than a $1000 income had an adequate number of servings on the initial food recall compared to 29 percent on the latest food recall. Each successive income category usually had higher percents of homemakers with adequate milk consumption on the latest food recall. Similar results were found for the meat and the vegetables and fruits group. Generally homemakers with higher incomes had more adequate servings from these two food groups (5:27-28). No pattern for the breads and cereals group resulted in relation to income level or significant improvements in diet adequacies (6:25).

Jones (6:56) summarized that changes in diet were more likely to occur where sufficient income was available for buying food.

Frye (4:26) in his evaluation of EFNEP indicated that the application of skills learned from the program could be limited by income level of families.

III. TOTAL TIME SPENT IN EFNEP PROGRAM AND NUTRITION PRACTICES

Two additional factors which are presented according to the findings of studies are total time spent on program and nutrition practices. These findings are discussed in relation to the dietary adequacy of EFNEP homemakers.

Total Time Spent in EFNEP Program

Total Time Spent in EFNEP Program is the length of time from the initial enrollment to the homemakers completion of EFNEP determined by the EFNEP Agent and Program Assistant. A 24 month to 30 month time period is the usual time spent in the EFENP program.

Quillen (11:90) found in her study a significant relationship between the total months in the program and the number of adequate servings in the homemakers diet from the milk, meat and vegetables-fruits groups. The first three food recalls indicated a positive influence between total months in the program and the number of adequate servings of milk. In the meat group, the number of months on the program and the number of adequate servings of meat increased in the fourth food recall. The total number of months in the program influenced the number of adequate servings of vegetables and fruits at the initial and third food recall. At the last three food recalls, the total months in the program showed a positive influence on the number of adequate servings consumed from the breads and cereals group.

Seiders (13:121) found no significant relationship between total months in the program and the number of homemakers with adequate diets. For the milk group, only those homemakers who had been in the program 24 to 30 months made very significant improvements from initial to the latest food recall. None of the groups of homemakers made significant improvements in the meat group. For the vegetables and fruits group, all groups of homemakers made very significant improvements except homemakers on the program 18 to

30 months made significant improvements in the number of adequate servings from initial to the latest food recall.

The Synetics Cooperation in 1971 (16:13-14) made an evaluative study of EFNEP. From this study, guidelines to help determine a recommended length of time a homemaker should stay in the program was established. Homemakers who fell in the bottom quarter of diet adequacy on the initial food recall should probably stay between 1 and 2 years to receive the most benefit. Homemakers who were faster learners should stay in the program from 1 year to 18 months. Homemakers in the upper quarter of diet adequacy on the initial food recall could probably gain the most skills from the program within the first 6 months.

Spindler and Browne (14:322) suggested from their study that EFNEP Families should be in the program long enough to develop new food habit patterns and new food skills for lasting progress.

Maruyama and others (8:3) supported a significant relationship between length of time in the program and diet adequacy of homemakers. His study showed improvement over a 2 year period in diet adequacy for all food groups.

Nutrition Practices

In EFNEP, nutrition practives are taught through a monthly home visit from the Program Assistant, newsletter, other mass media and workshops.

Stocking (15:86-93) in a study of selected nutrition practices found that food stamp homemakers who had a family of

two to four members used more nutrition practices than food stamp homemakers with five or more family members or those living alone. Mass media was very effective for influencing the nutrition practices of food stamp homemakers. Television, radio, newspapers, and the telephone were some of the mass media sources found to be significantly related to the use of nutrition practices by food stamp homemakers.

Workshops pertaining to food preservation, meat cooking and other nutritional subjects affected the use of nutrition practices of food stamp homemakers (15:90-91). The finding suggested the use of mass media and individual sources combined might contribute to the improvement of individual nutrition practices of low income food stamp recepients (15:93).

CHAPTER III

INFLUENCES OF HOME VISITS BY PROGRAM ASSISTANTS UPON HOMEMAKERS' DIETARY ADEQUACY

The purpose of this chapter is to report findings regarding the influences of home visits made by Program Assistants upon Homemakers' Dietary Adequacy. Findings are summarized in a section for each of the six tables included in this chapter. Section I reports findings regarding relationships between the total number of home visits EFNEP homemakers received from program assistants and family characteristics of EFNEP homemakers. Family characteristics include places of residence, families on welfare, families on food stamps, families with home gardens and income levels of families.

Section II presents findings regarding relationships between the number of home visits EFNEP homemakers received from program assistants and family characteristics of homemakers by 6-months time periods. Variables regarding family characteristics are the same as those given above.

Section III presents findings regarding relationships between the personal characteristics of EFNEP homemakers and the number of home visits received from program assistants over a 2-year time period. Personal characteristics include adult male in home, education, home ownership, and race.

Section IV presents findings regarding relationships between the number of home visits EFNEP homemakers received from program

assistants and personal characteristics of homemakers by 6-months time periods. Personal characteristics are the same as previously stated.

Section V presents findings regarding relationships between the total number of home visits made by program assistants and the total number of food servings from four food groups of EFNEP homemakers at the first and last food recalls.

Section VI presents findings regarding relationships between the number of home visits made by program assistants and the number of recommended food servings homemakers consumed from four food groups during the same time periods.

I. RELATIONSHIPS BETWEEN THE TOTAL NUMBER OF HOME VISITS HOMEMAKERS RECEIVED FROM PROGRAM ASSISTANTS OVER A 30-MONTHS TIME PERIOD AND FAMILY CHARACTERISTICS OF THE EFNEP HOMEMAKERS

This section presents results of an analysis of the relationship between the total number of home visits EFNEP homemakers received from program assistants over a 30-months time period and family characteristics of the homemakers. The mean number of home visits is shown (Table I) for each category of family characteristics. Family characteristics include places of residence, families on welfare, families on food stamps, families with home gardens, and income levels of families.

TABLE I

RELATIONSHIP BETWEEN THE TOTAL NUMBER OF HOME VISITS HOMEMAKERS RECEIVED FROM PROGRAM ASSISTANTS OVER A THIRTY MONTHS TIME PERIOD AND FAMILY CHARACTERISTICS OF THE EFNEP HOMEMAKERS

Family Characteristics	Number of Homemakers	30 Months Time Period
Places of Residence		Mean No. of Visits
Government Housing	31	25.71
Other	69	26.36
F Value		1.36
p Level		0.25
Families on Welfare		
Yes	18	24.94
No	82	26.93
F Value		5.01
p Level		0.03*
Families Received Food Stamps		
Yes	29	25.52
No	71	26.42
F Value		2.54
p Level		0.11
Families Grew Gardens		
Yes	44	26.45
No	56	25.93
F Value		1.01
p level		0.32

TABLE I (continued)

Family Characteristics	Number of Homemakers	30 Months Time Period
Income		Mean No. of Visits
Less than $1000	3	22.67
$1000 - 1999	3	26.67
$2000 - 2999	26	26.08
$3000 - 3999	13	26.31
$4000 - 4999	24	26.25
$5000 - over	30	26.43
F Value		1.20
p Level		0.32

*Mean numbers of home visits are significantly different ($p<.05$).

Families' Places of Residence

Results of an analysis of the relationship between mean number of home visits received from program assistants over a 30-months time period and the places of residence of homemakers is shown in Table I. Families' places of residence were classified as government housing or other types of housing. The 31 families who lived in government housing received an average of 26 home visits from program assistants over a 30-months time period while the other 69 families living in other types of housing received approximately the same number of home visits from program assistants. These differences in mean number of home visits received by EFNEP homemakers over a 2-year time period as to place of residence were not significant. Therefore, places of residence did not influence the number of home visits received by the homemakers.

Families on Welfare

The 18 families which were on welfare received an average of 25 visits from program assistants while the 82 families not on welfare received an average of 27 home visits over a 30-months time period. These differences in the number of home visits homemakers received from program assistants were significant at the .05 level. Families which were not on welfare received significantly more visits than those families which were receiving welfare payments.

Families Receiving Food Stamps

The 29 EFNEP families which were receiving food stamps were visited an average of 25.5 times by program assistants while the

71 families not on food stamps received an average of 26.4 home visits over the 30 months. There was not a significant relationship between whether or not families were on food stamps and the number of home visits received by program assistants.

Families with Home Gardens

The 44 EFNEP families who had home gardens received an average of 26.5 home visits compared to 25.9 visits received by the 56 EFNEP families who did not have home gardens. These differences were not significant at the .05 level as shown by the analysis of variance F test.

Family Income

The average income level of EFNEP families contacted over a 2-year time period are reported in Table I. The income levels ranged from less than $1000 up to $5000 and over. As indicated in the table, the higher levels of income had a larger number of EFNEP families; however, the levels of income were not significantly related to the number of home visits received from program assistants.

Summary

Of the family characteristics studied (places of residence, family on welfare, family on food stamps, family had home garden, and family income), only "family on welfare" was significantly related to the number of home visits homemakers received over a 30-months time period from EFNEP program assistants. Analysis of this variable indicated that EFNEP homemakers who were not on welfare

received a significantly larger number of home visits than those who were receiving welfare assistance.

II. RELATIONSHIPS BETWEEN THE NUMBER OF HOME VISITS EFNEP HOMEMAKERS RECEIVED FROM PROGRAM ASSISTANTS BY 6-MONTHS TIME PERIODS AND FAMILY CHARACTERISTICS OF HOMEMAKERS

This section presents results of an analysis of the number of home visits EFNEP homemakers received from program assistants by 6-months time periods and family characteristics (Table II). Family characteristics used in the study are place of residence, family on welfare, family on food stamps, family with home gardens, and income level of family. Time periods for computing home visits were 0-6 months; 6-12 months; 12-18 months, 18-24 months, and 24-30 months.

Families' Places of Residence

Homemakers living in government housing received an average of almost five home visits from program assistants during the first 6 months enrolled in the EFNEP program. Homemakers living in other types of housing received an average of just over four home visits from program assistants. These differences were not significant although homemakers tended to receive a larger number of home visits during each of the other 6 month time periods. The number of visits received did not differ significantly as to the homemakers' places of residence. Therefore, places of residence were not significantly

TABLE II

RELATIONSHIPS BETWEEN THE NUMBER OF HOME VISITS EFNEP HOMEMAKERS RECEIVED FROM PROGRAM ASSISTANTS BY SIX MONTHS TIME PERIODS AND FAMILY CHARACTERISITCS OF HOMEMAKERS

Family Characteristics	No. of Responses	Time in Program Periods 0-6 mos.	6-12 mos.	12-18 mos.	18-24 mos.	24-30 mos.
Places of Residence		Mean No. of Home Visits				
Gov. Housing	31	4.87	5.16	5.39	5.30	5.00
Other	69	4.33	5.59	5.64	5.46	5.33
F Value		1.58	3.36	1.66	0.65	2.25
P Level		0.21	0.07	0.20	0.42	0.14
Families on Welfare						
Yes	18	4.44	5.33	5.00	4.83	5.33
No	82	4.51	5.49	5.68	5.44	5.21
F Value		0.02	0.29	9.15	7.87	0.22
P Level		0.90	0.59	0.00*	0.01*	0.64
Families Received Food Stamps						
Yes	29	4.62	5.31	5.41	5.03	5.14
No	71	4.45	5.52	5.62	5.56	5.27
F Value		0.15	0.75	1.07	6.11	0.32
P Level		0.07	0.39	0.30	0.02*	0.57
Families Grew Home Gardens						
Yes	44	4.20	5.68	5.70	5.60	5.23
No	56	4.70	5.28	5.45	5.27	5.23
F Value		1.25	3.24	2.04	2.64	0.00
P Level		0.26	0.07	0.16	0.11	0.98

TABLE II (continued)

Family Characteristics	No. of Responses	Time in Program Periods 0-6 mos.	6-12 mos.	12-18 mos.	18-24 mos.	24-30 mos.
Income		Mean No. of Home Visits				
Less than $1000	3	3.33	5.67	6.67	3.33	3.67
$1000 - 1999	3	6.00	5.00	4.33	5.33	6.00
$2000 - 2999	26	4.46	5.42	5.58	5.42	5.19
$3000 - 3999	13	5.08	5.08	5.54	5.54	5.08
$4000 - 4999	24	4.08	5.83	5.70	5.54	5.08
$5000 - over	30	4.57	5.37	5.43	5.50	5.57
F Value		0.98	1.03	2.40	3.12	2.73
P Level		0.43	0.41	0.04*	0.01*	0.02*

*Mean numbers of home visits are significantly different than those reported at other selected time periods, ($p<.05$).

related to the number of home visits received during any of the time periods studied.

Families on Welfare

Homemakers on welfare received an average of 4.4 home visits during the first 6 months in the EFNEP program while homemakers not on welfare received almost the same number (4.5) of visits. Looking at the other time periods, homemakers not on welfare received significantly more home visits than those who were on welfare during the 12-18 months and the 18-24 months time periods. Therefore, the number of home visits made by program assistants was significantly related to the homemakers' welfare status during these two time periods.

Families Receiving Food Stamps

Homemakers on food stamps received an average of 4.6 home visits from program assistants during the first 6 months of enrollment while homemakers not on food stamps received an average of 4.5 home visits. These differences were not significant. Whether or not families were on food stamps did not significantly influence the number of home visits homemakers received except during the 18-24 months time period. During this time period (18-24 months), homemakers not receiving food stamps received significantly more visits than those who were receiving food stamps.

Families with Home Gardens

Homemakers who grew gardens received an average of 4.2 home visits from program assistants during the first 6 months while those

who did not grow gardens had an average of 4.7 home visits. These differences were not significant. During the other 6-months time periods, homemakers with gardens tended to receive more home visits; however, the analysis of variance F test indicated that the differences were not significant at the .05 level. Therefore, the number of home visits received by EFNEP homemakers was not significantly related to whether or not homemakers grew a home garden.

Family Income

Homemakers with an income level of less than $1000 received an average of three home visits from program assistants during the first 6 months of enrollment while those in each of the other income levels received a larger number of visits. These differences, however, were not significant. The number of home visits received was significantly related to income levels during three of the five time periods studied (i.e., 12-18 months, 18-24 months, and 24-30 months). The number of home visits tended to increase as the income of homemakers also increased.

Summary

Analysis of the number of home visits homemakers received during five different 6-months time periods indicated that the family characteristics of the homemakers (i.e., places of residence, family on welfare, family receiving food stamps, family grew a garden, and family income) had very little, if any, influence upon the number of visits received. More specifically, place of residence and having a home garden did not influence the number of visits received.

Other family characteristics were related to contacts received during one or more of the 6-months time periods studied. Homemakers not on welfare, those not receiving food stamps, and those who had higher incomes generally received more home visits.

III. RELATIONSHIPS BETWEEN TOTAL NUMBER OF HOME VISITS HOMEMAKERS RECEIVED FROM PROGRAM ASSISTANTS OVER A 30-MONTHS TIME PERIOD AND PERSONAL CHARACTERISTICS OF THE EFNEP HOMEMAKERS

This section presents results of an analysis of the relationship between the personal characteristics of EFNEP homemakers and the number of home visits they received over a 30-months time period (see Table III). Personal characteristics used in the study are adult male in home, education, home ownership, and race.

Adult Male in Home

Homemakers with an adult male in the home received an average of just over 26 home visits from program assistants during the 30 months studied while those without a male in the home received almost the same number of visits (26). These very minor differences in numbers of home visits received were not significant. Therefore, whether or not a male was living in the home did not significantly influence the number of visits homemakers received from program assistants.

TABLE III

RELATIONSHIPS BETWEEN TOTAL NUMBER OF HOME VISITS HOMEMAKERS RECEIVED FROM PROGRAM ASSISTANTS OVER A THIRTY MONTHS TIME PERIOD AND PERSONAL CHARACTERISTICS OF THE EFNEP HOMEMAKERS

Personal Characteristics	No. of Responses	30 Months Time Period
Adult Male In Home	Mean No. Total Home Visits	
Yes	55	26.36
No	42	26.00
F Value		0.46
p Level		0.50
Education		
8th grade or less	72	26.04
Some high school	27	26.41
Beyond high school	1	28.00
F Value		0.44
p Level		0.64
Home Ownership		
Owner	14	27.00
Renter	85	26.02
F Value		1.70
p Level		0.20
Race		
White	63	26.14
Black	37	26.19
F Value		0.01
p Level		0.93

Education of Homemaker

Education of homemakers was categorized into three levels (eighth grade or less, some high school, and beyond high school). Seventy-two percent of the homemakers had an education of eighth grade or less. These homemakers received an average of just over 26 home visits. Homemakers who had achieved higher education levels received slightly more home visits. However, differences in the number of visits received were not significant. Therefore, education levels of homemakers did not significantly influence the number of home visits they received over a 30-months time period.

Home Ownership

Homemakers were classified as home owners and those who rented their homes. Fourteen percent of the homemakers owned their homes and received 27 home visits from program assistants during the 30 months studied while the 85 homemakers who rented their homes received slightly fewer visits (26). These differences in the number of visits received by homemakers who owned their homes as compared to those who rented their homes were not significant.

Race

Homemakers were classified as to race (white or black). The number of home visits received by EFNEP homemakers over a 30-months time period did not differ significantly. Therefore, home visits were not significantly related to race of the homemakers.

Summary

None of the personal characteristics of the homemakers (Table III) was significantly related to the number of home visits homemakers received from EFNEP program assistants during the 30 months studied. Therefore, personal characteristics did not significantly influence the number of visits EFNEP homemakers received.

IV. RELATIONSHIPS BETWEEN THE NUMBER OF HOME VISITS EFNEP HOMEMAKERS RECEIVED FROM PROGRAM ASSISTANTS BY 6-MONTHS TIME PERIODS AND PERSONAL CHARACTERISTICS OF HOMEMAKERS

This section presents results of an analysis of the relationships between the number of home visits EFNEP homemakers received from program assistants by 6-months periods and the personal characteristics of homemakers. Five periods were used: 0-6 months, 6-12 months, 12-18 months, 18-24 months, and 24-30 months. Personal characteristics included in Table IV are: adult male in the home, educational level, home ownership, and race.

Adult Male in Home

Homemakers with an adult male in the home received an average of 4.2 home visits from program assistants during the first 6 months of enrollment compared to 4.8 by homemakers where no adult male lived in the home. These differences were not significant at the .05 level. During each of the other time periods, homemakers having an adult male living in the home received a larger number of home visits.

TABLE IV

RELATIONSHIPS BETWEEN THE NUMBER OF HOME VISITS EFNEP HOMEMAKERS RECEIVED FROM PROGRAM ASSISTANTS BY SIX MONTHS TIME PERIODS AND PERSONAL CHARACTERISTICS OF HOMEMAKERS

Personal Characteristics	Responses	Time in Program Periods 0-6 mos.	6-12 mos.	12-18 mos.	18-24 mos.	24-30 mos.
Adult Male in Home		Mean No. Home Visits				
Yes	55	4.22	5.54	5.60	5.58	5.42
No	42	4.76	5.33	5.52	5.26	5.12
F Value		1.80	0.86	0.17	2.65	2.21
p Level		0.18	0.36	0.67	0.11	0.14
Education						
8th grade or less	72	4.38	5.44	5.57	5.36	5.29
Some high school	27	4.81	5.52	5.52	5.52	5.04
Beyond high school	1	5.00	5.00	6.00	6.00	6.00
F Value		0.51	0.13	0.15	0.42	0.87
p Level		0.60	0.89	0.86	0.66	0.42
Home Ownership						
Owner	14	4.00	5.64	5.86	5.86	5.64
Renter	85	4.55	5.43	5.50	5.33	5.20
F Value		0.94	0.42	1.82	3.44	2.46
p Level		0.33	0.52	0.18	0.07	0.12
Race						
White	63	3.95	5.60	5.70	5.52	5.36
Black	37	5.43	5.22	5.32	5.22	5.00
F Value		14.81	2.91	4.13	2.25	2.97
p Level		0.00*	0.09	0.05*	0.14	0.09

*Mean numbers of home visits are significantly different from those reported at other time periods, ($p<.05$).

However, none of these differences was significant. Therefore, the number of home visits received by homemakers was not significantly related to whether or not an adult male lived in the home.

Education of Homemaker

Education was categorized as either eighth grade or less, some high school, and beyond high school. During the first 6 months of enrollment, homemakers with an education of eighth grade or less received an average of 4.4 visits from program assistants. Homemakers with some high school education received an average of 4.8 home visits from program assistants for the same time period. Only one reported having at least a high school education. This homemaker received five home visits for this time period. Although there were no significant differences reported, the homemaker with an education beyond high school received consistently more home visits. During each of the other four time periods, homemakers who received more home visits tended to have a higher education, but differences were not statistically significant. Therefore, education of the homemaker did not significantly influence the number of home visits received from EFNEP program assistants.

Home Ownership

Home ownership was categorized into homemakers who owned their homes and homemakers who rented their homes. Homemakers who owned their homes received four home visits during the first 6 months of enrollment compared to 4.6 home visits received by those who rented their homes. During each of the other four time periods,

homemakers who owned their homes received more home visits than those who rented; however, none of these differences achieved the .05 level of significance. It was concluded, therefore, that home ownership did not significantly influence the number of home visits made by EFNEP program assistants.

Race

Homemakers were classified as to race (white or black). The white homemakers received an average of 3.95 home visits from program assistants during the first 6 months of enrollment. The black homemakers received an average of 5.4 home visits from program assistants during the same time period. These differences were significant; therefore, black homemakers received significantly more home visits than white homemakers during the first 6 months on the program. However, looking at the other time periods, white homemakers tended to receive more home visits than black homemakers. These differences were not significant except for the 12-18 months time period. During this time period (12-18 months), white homemakers received significantly more home visits than did the black homemakers.

Summary

Results of data analysis summarized in Table IV indicated that only one of the personal characteristic variables was significantly related to the number of home visits EFNEP homemakers received during selected time periods. Although small differences in numbers of home visits received by white homeowners as compared to black homemakers did exist, these differences were significant for the first 6 months

when the black homemakers received more home visits than did white homemakers. This was reversed during the 12-18 months time period when the white homemakers received significantly more visits.

V. RELATIONSHIPS BETWEEN THE TOTAL NUMBER OF HOME VISITS HOMEMAKERS RECEIVED FROM THE PROGRAM ASSISTANTS AND THE TOTAL NUMBER OF FOOD SERVINGS FROM FOUR FOOD GROUPS CONSUMED BY EFNEP HOMEMAKERS AT FIRST AND LAST FOOD RECALLS

This section presents results of analysis of the relationships between the total number of home visits made by program assistants and the total number of food servings from four food groups consumed by EFNEP homemakers, as shown in the food recall during the first 6 months of enrollment and after 30-months enrollment in the EFNEP program (Table V).

After 6 months in the EFNEP program, the total number of servings homemakers reported from four food groups ranged from a low of 4.7 to a high of 8.3. Numbers of home visits received by the homemakers ranged from one to 10. The analysis of variance test indicated a significant relationship between the number of food servings consumed by homemakers at the end of the first 6 months in the EFNEP program and the number of home visits homemakers received from program assistants during the 6 months. However, the data are inconclusive as to the direction of the relationship. During the first 6 months, the number of food servings seemed to increase as the number of home visits increased up to about six home visits,

TABLE V

RELATIONSHIPS BETWEEN THE TOTAL NUMBER OF HOME VISITS HOMEMAKERS RECEIVED FROM PROGRAM ASSISTANTS AND THE TOTAL NUMBER OF FOOD SERVINGS FROM FOUR FOOD GROUPS CONSUMED BY EFNEP HOMEMAKERS AT FIRST AND LAST FOOD RECALLS

Number of Home Visits	Time in Program Periods			
	6 Months		30 Months	
	Mean No. Food Servings			
1	1	6.00		
2	10	7.90	2	7.00
3	30	8.33	5	9.40
4	19	7.37	15	7.73
5	9	7.44	26	9.38
6	13	7.61	50	9.22
7	10	6.20	2	8.50
8	3	4.67		
9	4	6.50		
10	1	6.00		
F Value		2.01		2.29
p Level		0.05*		0.05*

*The mean total number of food servings consumer per 24-hour time period differed significantly as to the number of home visits received, ($p<.05$).

then there appeared to be a decrease in the number of food servings consumed. After 30 months in EFNEP, there appeared to be an increase in the total number of food servings consumed compared to that at the end of the first 6 months. The range in the average number of food servings consumed was from a low of 7.0 to a high of 9.4. The analysis of variance test indicated a significant relationship between the number of food servings consumed and the number of home visits homemakers received from program assistants during the 6-months time period (i.e., 24-30 months). As noted above for the first 6-months time period, the directions of the relationship seem inconclusive.

Summary

Findings presented in Table V are interesting and tend to show that the number of food servings consumed by homemakers increased between the first food recall (6 months) and the last food recall (30 months). Also, the analysis showed a significant relationship between the numbers of home visits made by program assistants to the homes of homemakers during the two 6-months time periods and the number of food servings consumed by the homemakers. However, the direction of relationships shown is inconclusive. It is not clear whether the number of food servings increased or decreased as the number of home visits increased during each of these two time periods analyzed in Table V.

VI. RELATIONSHIPS BETWEEN THE NUMBER OF HOME VISITS HOMEMAKERS RECEIVED FROM PROGRAM ASSISTANTS AND WHETHER OR NOT THE HOMEMAKERS CONSUMED THE RECOMMENDED NUMBER OF FOOD SERVINGS FROM EACH OF FOUR FOOD GROUPS AT THE END OF EACH OF FIVE TIME PERIODS

This section presents results of an analysis of the relationships between the number of home visits made by program assistants and the number of recommended food servings from four food groups consumed by homemakers during the same five time periods (see Table VI). The recommended daily food servings for four food groups are two or more servings of milk products, two or more servings from the meat group, four or more servings of fruits/vegetables, and four or more servings from the breads/cereals group.

Milk Group

During the first 6 months of enrollment, the 81 homemakers who did not consume the recommended number of food servings from the milk group received an average of 4.5 home visits from program assistants. The 19 homemakers who did consume the recommended number of servings from the milk group received an average of 4.4 home visits. At the end of the 12-months time period of enrollment, the number of homemakers who reported consuming the recommended number of milk servings increased from 19 to 27 homemakers. The number of home visits received from program assistants also increased for both groups of homemakers for this time period.

TABLE VI

RELATIONSHIPS BETWEEN THE NUMBER OF HOME VISITS HOMEMAKERS RECEIVED FROM PROGRAM ASSISTANTS AND WHETHER OR NOT THE HOMEMAKERS CONSUMED THE RECOMMENDED NUMBER OF FOOD SERVINGS FROM EACH OF THE FOUR FOOD GROUPS AT THE END OF EACH OF FIVE TIME PERIODS

Recommended Food Servings Consumed	Time in Program Periods: 6 Mos.	12 Mos.	18 Mos.	24 Mos.	30 Mos.
Milk		Mean No. Home Visits			
(N=100)					
No	81 4.53	73 5.46	77 5.52	83 5.48	71 5.31
Yes	19 4.37	27 5.44	23 5.69	16 5.37	29 5.03
F Value	0.10	0.01	0.67		1.47
p Level	0.75	0.93	0.41		0.23
Meat					
(N=100)					
No	32 5.12	20 5.55	19 5.53	27 5.59	21 4.71
Yes	68 4.20	80 5.44	81 5.57	72 5.42	79 5.37
F Value	4.86	0.16	0.03		7.02
p Level	0.03*	0.69	0.86		0.01*
Fruits and Vegetables					
(N=100)					
No	76 4.60	67 5.30	76 5.50	59 5.46	54 5.07
Yes	24 4.17	33 5.79	24 5.75	40 5.47	46 5.41
F Value	0.89	4.49	1.40		2.72
p Level	0.35	0.04*	0.24		0.10

Table VI (continued)

Recommended Food Servings Consumed	Time in Program Periods 6 Mos.	12 Mos.	18 Mos.	24 Mos.	30 Mos.
Breads and Cereals (N=100)	Mean No. Home Visits				
No	66 4.77	50 5.36	50 5.54	37 5.40	44 5.02
Yes	34 3.97	50 5.56	50 5.58	62 5.50	56 5.39
F Value	3.78	0.82	0.05		3.32
p Level	0.05*	0.37	0.82		0.07

*Mean number of home visits is significantly different among homemakers who were and those who were not consuming the recommended number of food servings at the end of the time period.

During the time period of 18-months enrollment, the number of home visits increased slightly for both groups of homemakers. During the 24-months time period only 16 homemakers consumed the recommended number of milk servings. The number of homemakers (83) who did not have the recommended number of milk servings from the milk group received an average of 5.5 home visits in comparison to an average of 5.4 home visits received by the homemakers who had recommended milk servings from the milk group. During the 30-months time period, the number of homemakers receiving recommended milk servings increased. Homemakers who had the recommended number of milk servings received an average of 5 home visits while homemakers who did not have the recommended number of milk servings received an average of 5.3 home visits.

None of these differences in the number of home visits received was significant as to whether or not the homemaker consumed the recommended number of servings of milk.

Meat

During the first 6 months of enrollment, a significant difference was reported in the number of home visits received as to whether or not the homemaker consumed the recommended number of meat servings. Homemakers who did not consume the recommended amount of meat servings received an average of 5.1 home visits from program assistants compared to 4.2 for those consuming two servings of meat daily. At the end of 30 months a significant difference (0.01) was found in the number of home visits received as to whether or not

the homemakers had consumed two servings of meat daily. Homemakers who reported consuming the recommended number of servings of meat received significantly more home visits than those who did not consume two servings of meat daily at the end of the 30-months time period.

Fruits and Vegetables

A significant difference in the number of home visits received (0.04) was reported for the time period of 12-months enrollment. The homemakers who reported the recommended number of fruits and vegetables servings received an average of 5.8 home visits from program assistants. Homemakers who did not report recommended numbers of fruits and vegetables servings received an average of 5.3 home visits from program assistants. All 6-months periods, except the first 6 months, showed the average number of home visits received from program assistants was slightly higher for homemakers reporting recommended numbers of fruits and vegetables servings. These differences were significant only during the 12-months time period.

Breads and Cereals

A significant difference in the number of home visits received was reported for the first 6 months of enrollment. Homemakers who reported recommended breads and cereals servings received an average of four home visits from program assistants compared to 4.8 by those not consuming four servings of breads and cereals per day at the end of the first 6 months. During the other time periods the number of

home visits received did not differ significantly among those homemakers who did consume four servings of breads and cereals daily compared to those who did not.

Summary

Findings are presented in Table VI regarding relationships between whether or not the homemakers reported recommended servings from each of four food groups and the number of home visits received from program assistants for each of the five time periods. The 12-months time period indicated significant difference (0.04) in the number of home visits received in only one food group--fruits and vegetables. These homemakers who reported recommended servings from this food group received 5.8 home visits in comparison to 5.3 home visits for those homemakers who did not report recommended servings.

The F statistic and the probability level were not completed for the 24-months time period due to missing responses. At the end of the 12-months time period, the number of home visits received by the homemakers did not differ significantly as to whether or not homemakers were consuming recommended servings except for the fruits and vegetables food group. In this case, homemakers who had consumed the recommended number of servings received significantly more home visits than did those not consuming the recommended number of servings each day. After 18 months in the EFNEP program, the number of home visits received by the homemakers did not differ significantly as to whether or not homemakers had consumed the

recommended number of servings from any of the food groups. This was true also after 36 months in the program except for the meat group. In this case, homemakers who had consumed two servings of meat received significantly more visits from program assistants.

CHAPTER IV

CHANGES IN MEAN NUMBER OF SERVINGS CONSUMED FROM EACH OF FOUR FOOD GROUPS AT SELECTED TIME PERIODS IN RELATION TO HOMEMAKERS' CHARACTERISTICS

The purpose of this chapter is to report findings regarding change in the mean number of servings from each of four food groups at different time periods in relation to homemakers' characteristics. Findings are summarized in a section for each of the eight tables included in this chapter. Section I discusses relationships between the mean number of servings homemakers consumed from each of four food groups upon entering the EFNEP program and their family characteristics. Family characteristics include places of residence, families on welfare, families on food stamps, families with home gardens, and income level of families.

Section II presents findings regarding relationships between mean number of servings homemakers consumed from each of four food groups upon entering the EFNEP program and their personal characteristics. Personal characteristics included adult male in home, education, home ownership, and race.

Section III presents findings regarding relationships between mean number of servings homemakers consumed from each of four food groups at the last food recall taken and family characteristics.

Section IV presents findings regarding relationships between mean number of servings homemakers consumed from each of four food groups on the last food recall taken and their personal characteristics

Section V presents findings regarding relationships between the total number of food servings consumed at the first and last food recalls by EFNEP homemakers and their family characteristics.

Section VI presents findings regarding relationships between the total number of food servings homemakers consumed at the first and last food recalls and their personal characteristics.

Section VII presents findings regarding change in mean number of food servings consumed from each food group at first food recall compared with later food recalls. The analysis of variance F test was used to determine the strength of the relationship between each quantitative dependent variable and each qualitative independent variable. Dependent variables are selected measures of the number of servings from each food group EFNEP homemakers reported consuming at selected time periods (i.e., food recalls). Independent variables were classified as either family or personal characteristics of the homemakers. Five family characteristic variables and four personal characteristic variables were analyzed and results are summarized in this chapter.

Section VIII presents findings regarding the relationships between the number of recommended food servings from each of four food groups at the first and last food recall. Chi square was used to analyze the significance of relationships between whether

or not homemakers consumed the recommended number of food servings at the first food recall and again at the last food recall.

The .05 probability level was selected for purposes of assessing the significance of relationships between independent and dependent variables.

I. RELATIONSHIPS BETWEEN MEAN NUMBER OF SERVINGS HOMEMAKERS CONSUMED FROM EACH OF FOUR FOOD GROUPS UPON ENTERING THE EFNEP PROGRAM AND THEIR FAMILY CHARACTERISTICS

This section presents findings regarding relationships between the average number of servings homemakers consumed from each of four food groups upon entering the EFNEP program and their family characteristics. The average number of servings consumed from each food group is given (Table VII) from each variable regarding family characteristics. Family characteristics included places of residence, welfare, food stamps, home garden, and income.

Place of Residence

Results of data analysis regarding relationship between the average number of food servings consumed and homemakers' places of residence are reported in Table VII. Homemaker's place of residence was classified as government housing or other types of housing. One third of these families lived in government housing. These homemakers reported fewer servings from each food group in comparison to families living in other types of housing. However, when tested by the analysis of variance F test, none of the differences were

TABLE VII

RELATIONSHIPS BETWEEN MEAN NUMBER OF SERVINGS HOMEMAKERS CONSUMED FROM EACH OF FOUR FOOD GROUPS UPON ENTERING THE EFNEP PROGRAM AND THEIR FAMILY CHARACTERISTICS

Family Characteristics	No. of Responses	Food Groups: Milk	Meat	Fruits and Vegetables	Breads Cereals
Places of Residence		Mean No. Servings First Food Recall			
Government Housing	31	0.58	1.68	2.19	2.74
Other	69	0.65	1.67	2.35	2.91
F Value		0.17	0.01	0.31	0.53
p Level		0.68	0.93	0.58	0.47
Welfare					
Yes	18	0.44	1.72	1.89	2.67
No	82	0.67	1.66	2.39	2.90
F Value		1.22	0.15	2.28	0.70
p Level		0.27	0.70	0.13	0.40
Food Stamps					
Yes	29	0.65	1.83	2.27	2.83
No	71	0.62	1.60	2.31	2.87
F Value		0.04	2.54	0.01	0.04
p Level		0.84	0.11	0.90	0.85
Home Garden					
Yes	44	0.57	1.61	2.59	2.89
No	56	0.68	1.71	2.07	2.84
F Value		0.48	0.61	4.17	0.05
p Level		0.49	0.43	0.04*	0.83
Income					
Less than $1000	3	1.00	1.67	2.00	3.33
$1000 - 1999	3	0.67	2.00	1.67	2.67
$2000 - 2999	26	0.73	1.69	2.73	2.92
$3000 - 3999	13	0.38	1.69	1.69	2.70
$4000 - 4999	24	0.54	1.54	2.75	3.12
$5000 - over	30	0.67	1.73	1.97	2.60
F Value		0.53	0.41	2.52	0.84
p Level		0.75	0.84	0.03*	0.52

TABLE VII (continued)

Family Characteristics	No. of Responses	Food Groups: Milk	Meat	Fruits and Vegetables	Breads/ Cereals
Income		Mean No. Servings First Food Recall			
Less than $1000	3	1.00	1.67	2.00	3.33
$1000 - 1999	3	0.67	2.00	1.67	2.67
$2000 - 2999	26	0.73	1.69	2.73	2.92
$3000 - 3999	13	0.38	1.69	1.69	2.70
$4000 - 4999	24	0.54	1.54	2.75	3.12
$5000 - over	30	0.67	1.73	1.97	2.60
F Value		0.53	0.41	2.52	0.84
p Level		0.75	0.84	0.03*	0.52

*Mean number of food servings are significantly different, ($p<.05$).

significant at the .05 level. Therefore, the number of food servings in each food group consumed by the homemakers did not differ significantly as to homemaker's place of residence.

Families on Welfare

Welfare families consumed fewer servings of food from each of the food groups except the meat group in contrast to families not on welfare. Families on welfare reported a slightly higher number of food servings from the meat group. However, no significant differences in the number of servings consumed from each food group were shown among those homemakers who were and those who were not on welfare. Therefore, welfare was not a factor related to the mean number of food servings consumed from four food groups.

Families on Food Stamps

Almost one-third of EFNEP families received food stamps. These families consumed more food servings from each food group except the breads and cereals group in comparison to families not on food stamps. There was not a significant difference in the number of servings consumed from any of the food groups as to whether or not the family received food stamps. Therefore, receiving food stamps did not significantly influence the number of food servings consumed from any of four food groups.

Families with Home Gardens

Homemakers who grew gardens received more food servings from the fruits and vegetables and the breads and cereals food groups than

those homemakers who did not grow a garden. However, homemakers who had a garden consumed fewer servings of meat and milk. The differences in the number of servings consumed were significant only for the fruits and vegetables group. Therefore, having a garden did influence the number of servings of fruits and vegetables consumed but did not have a significant influence on the other food groups.

Income

Income levels for EFNEP families ranged from less than $1000 up to $5000 and over. As indicated in the table, the higher levels of income had a larger number of EFNEP families. Families with an income less than $1000 reported more food servings from the milk and breads and cereals food groups and fewer servings of fruits and vegetables and of meat. Families with an income $1000-$1999 reported the highest number of food servings from the meat group. Families with an income $4000-4999 reported the highest number of food servings from the fruits and vegetables and the breads and cereals food groups. The number of servings homemakers consumed from the fruits and vegetables food group was significantly related to family income. The number of servings consumed from the other food groups did not differ significantly as to family income.

Summary

The mean number of servings homemakers consumed from each food group upon entering the EFNEP program and their family characteristics differed significantly as to whether or not the family had a home garden and income of the families. Homemakers in families who grew

a garden consumed significantly more food servings from the fruits and vegetables food group. Homemakers in families with higher incomes consumed significantly more food servings from the fruits and vegetables food group than families with lower income levels.

II. RELATIONSHIPS BETWEEN MEAN NUMBER OF SERVINGS HOMEMAKERS CONSUMED FROM EACH OF FOUR FOOD GROUPS UPON ENTERING THE EFNEP PROGRAM AND THEIR PERSONAL CHARACTERISTICS

This section summarizes relationships between the average number of servings homemakers consumed from each of four food groups upon entering the EFNEP program and their personal characteristics. The average number of servings from each food group is shown in Table VIII for each variable regarding homemakers' personal characteristics. Personal characteristics induled adult male in the home, education of homemaker, home ownership, and race.

Education

Homemakers' education was classified into three categories (eighth grade or less, some high school, and beyond high school). The largest number of homemakers (72 percent) had an education of eighth grade or less. These homemakers reported the highest number of food servings from the milk and breads and cereals food groups. Homemakers beyond high school education reported the highest numbers of food servings from the meat and fruits and vegetables food groups. However, there was no significant difference in the number of servings consumed from any of the food groups as to education of the homemakers. Therefore, education did not significantly influence the

TABLE VIII

RELATIONSHIPS BETWEEN MEAN NUMBER OF SERVINGS HOMEMAKERS CONSUMED FROM EACH OF FOUR FOOD GROUPS UPON ENTERING THE EFNEP PROGRAM AND THEIR PERSONAL CHARACTERISTICS

Personal Characteristics	No. of Responses	Food Groups: Milk	Meat	Fruits and Vegetables	Breads/ Cereals
Adult Male In Home		Mean No Servings First Food Recall			
Yes	55	0.65	1.67	2.13	2.91
No	42	0.59	1.64	2.48	2.78
F Value		0.14	0.05	1.80	0.91
p Level		0.71	0.82	0.18	0.58
Education					
8th grade or less	72	0.67	1.68	2.25	2.90
Some high school	27	0.55	1.63	2.37	2.78
Beyond high school	1	0.00	2.00	4.00	2.00
F Value		0.51	0.19	0.97	0.44
p Level		0.60	0.82	0.36	0.64
Home Ownership					
Owner	14	0.29	1.21	3.00	3.07
Renter	85	0.69	1.74	2.19	2.82
F Value		3.30	8.83	4.96	0.62
p Level		0.07	0.00*	0.03*	0.43
Race					
White	63	0.63	1.68	2.36	3.11
Black	37	0.62	1.65	2.19	2.43
F Value		0.01	0.06	0.44	9.99
p Level		0.93	0.30	0.51	0.00*

*Mean number of food servings are significantly different, ($p<.05$).

number of food servings consumed from any of four food groups when homemakers first entered the EFNEP program.

Adult Male in Home

Families with an adult male in the home reported more food servings from four food groups except the fruits and vegetables food group. However, no significant differences were shown between the number of food servings consumed from any of the food groups and whether or not there was an adult male in the home.

Home Ownership

Homemakers were classified into two categories as to their home ownership: those who owned and those who rented their homes. Homemakers who owned homes reported more food servings from the fruits and vegetables and the breads and cereals food groups. Families who rented their homes reported more food servings from the milk and meat food groups. Significant differences were shown for the meat food group (0.00) and the fruits and vegetables food group (0.03). Homemakers who rented their homes consumed a larger number of servings from the meat group and a smaller number from the fruits and vegetables group than did those who owned their own home.

Race

Homemakers were classified as to race (white or black). The number of food servings consumed from each of four food groups was reported highest among white homemakers. However, only the breads and

cereals food group showed significant difference in the number of servings consumed as to the race of homemakers. White homemakers consumed significantly larger numbers of servings from the breads and cereals food group than did the black homemakers.

Summary

The relationship between the average number of food servings homemakers consumed from each of four food groups upon entering the program was significantly influenced by two personal characteristics, home ownership and race. Homemakers who owned their home consumed fewer servings of meat and a larger number of fruits and vegetables servings than did those who were renting their homes. White homemakers consumed a larger number of servings from breads and cereals food group than the black homemakers. Other personal characteristics of the homemakers did not significantly influence the number of food servings consumed from any of the food groups.

III. RELATIONSHIPS BETWEEN MEAN NUMBER OF SERVINGS HOMEMAKERS CONSUMED FROM EACH OF FOUR FOOD GROUPS ON THE LAST FOOD FOOD RECALL AND THEIR FAMILY CHARACTERISTICS

This section presents findings regarding relationships between the mean number of servings homemakers consumed from each of four food groups on the last food recall and their family characteristics (Table IX). Family characteristics included place of residence, welfare, food stamps, home garden, and income.

TABLE IX

RELATIONSHIPS BETWEEN MEAN NUMBER OF SERVINGS HOMEMAKERS CONSUMED FROM EACH OF FOUR FOOD GROUPS ON THE LAST FOOD RECALL AND THEIR FAMILY CHARACTERISTICS

Family Characteristics	No. of Responses	Food Groups			
		Milk	Meat	Fruits and Vegetables	Breads/ Cereals
Places of Residence		Mean No. Servings Last Food Recall			
Government Housing	31	1.29	1.87	2.74	3.09
Other	69	0.71	1.84	2.80	3.51
F Value		10.92	0.04	0.04	4.65
p Level		0.00*	0.84	0.85	0.03*
Welfare					
Yes	18	0.94	1.89	2.72	3.11
No	82	0.88	1.84	2.79	3.44
F Value		0.09	0.06	0.04	1.99
p Level		0.77	0.80	0.84	0.16
Food Stamps					
Yes	29	1.00	1.86	2.52	3.21
No	71	0.84	1.84	2.89	3.45
F Value		0.68	0.01	1.66	1.53
p Level		0.41	0.91	0.20	0.22
Home Garden					
Yes	44	0.64	1.89	2.93	3.45
No	56	1.09	1.82	2.66	3.32
F Value		7.42	0.20	1.06	0.54
p Level		0.01*	0.65	0.30	0.46

TABLE IX (continued)

Family Characteristics	No. of Responses	Food Groups			
		Milk	Meat	Fruits and Vegetables	Breads/ Cereals
Income		Mean No. Servings Last Food Recall			
Less than $1000	3	1.00	1.00	3.66	2.67
$1000 - 1999	3	1.00	2.00	2.67	2.67
$2000 - 2999	26	1.00	1.92	2.73	3.50
$3000 - 3999	13	1.38	1.70	2.69	3.61
$4000 - 4999	24	0.87	1.67	3.00	3.46
$5000 - over	30	0.53	2.07	2.63	3.30
F Value		2.17	1.99	0.49	1.14
p Level		0.06	0.09	0.78	0.35

*Mean numbers of food servings are significantly different, ($p<.05$).

Place of Residence

The families living in government housing reported consuming a larger number of food servings from the milk and meat groups than those families living in other types of housing. Families living in other types of housing reported more food servings from fruits and vegetables and breads and cereals food groups than families living in government housing. The number of milk and of breads and cereals servings consumed differed significantly as to place of residence. EFNEP homemakers living in government housing consumed a significantly larger number of milk servings but a smaller number of breads and cereals servings than homemakers living outside government housing.

Families on Welfare

Families who received welfare consumed a larger number of food servings from the milk and meat food groups, while families who did not receive welfare consumed a larger number of food servings from the fruits and vegetables and breads and cereals food groups However, these differences were not significant at the .05 level.

Families Receiving Food Stamps

Families who received food stamps reported a slightly higher average number of food servings from the milk and meat food groups than those families who did not receive food stamps. Families who did not receive food stamps reported a slightly higher average number of food servings from the fruits and vegetables and breads

and cereals food groups. However, these differences were not significant.

Home Garden

Families who grew gardens reported consuming a larger number of food servings from three food groups which included meat, fruits and vegetables, and the breads and cereals food group. However, only the milk food group differed significantly as to whether or not homemakers grew a home garden. A significantly larger number of servings from the milk group was consumed by homemakers who did not grow a garden.

Income

Six homemakers reported family incomes of less than $3000 per year; however, these homemakers did not report significantly fewer servings from any of four food groups than families reporting higher incomes. Therefore, family income was not a significant factor influencing the number of food servings EFNEP homemakers reported consuming at the last food recall.

Summary

Results of the analysis reported in this section indicate significant differences between the average number of food servings homemakers consumed from the milk group as to homemaker's place of residence and whether or not the family had a home garden. Homemakers living in government housing reported consuming a significantly larger number of servings of milk at the last food recall than

families living outside government housing. The number of servings homemakers consumed from the meat and from the fruits and vegetables food groups did not differ significantly as to any of the family characteristics studied. However, homemakers living in government housing consumed significantly fewer servings of breads and cereals than families living outside of government housing.

IV. RELATIONSHIPS BETWEEN MEAN NUMBER OF SERVINGS HOMEMAKERS CONSUMED FROM EACH OF FOUR FOOD GROUPS ON THE LAST FOOD RECALL AND THEIR PERSONAL CHARACTERISTICS

This section presents findings from an analysis of the relationships between the mean number of servings homemakers consumed from each of four food groups at the last food recall and their personal characteristics (Table X). Personal characteristics included adult male in the home, education of the homemaker, home ownership, and race.

Education

Education was classified into three categories (eighth grade or less, some high school, and beyond high school). Homemakers with an eighth grade or less education reported consuming a higher average number of food servings from the milk group, while homemakers with beyond a high school education reported a higher average number of food servings from the meat, fruits and vegetables, and the breads and cereals food groups. However, none of these differences were significant. Therefore, the level of homemakers' education did not

TABLE X

RELATIONSHIPS BETWEEN MEAN NUMBER OF SERVINGS HOMEMAKERS CONSUMED FROM EACH OF FOUR FOOD GROUPS ON THE LAST FOOD RECALL AND THEIR PERSONAL CHARACTERISTICS

Personal Characteristics	No. of Responses	Food Groups			
		Milk	Meat	Fruits and Vegetables	Breads/ Cereals
Adult Male In Home		Mean No. Servings Last Food Recall			
Yes	55	0.75	1.84	2.69	3.42
No	42	1.07	1.86	2.86	3.33
F Value		3.58	0.02	0.38	0.21
p Level		0.06	0.89	0.54	0.65
Education					
8th grade or less	72	0.96	1.87	2.68	3.40
Some high school	27	0.74	1.78	3.00	3.30
Beyond high school	1	0.00	2.00	4.00	4.00
F Value		1.20	0.20	1.03	0.37
p Level		0.31	0.82	0.36	0.69
Home Ownership					
Owner	14	0.64	1.64	3.64	3.43
Renter	85	0.92	1.89	2.66	3.39
F Value		1.26	1.49	7.32	0.02
p Level		0.26	0.22	0.01*	0.88
Race					
White	63	0.89	1.81	2.73	3.49
Black	37	0.89	1.92	2.86	3.19
F Value		0.00	0.54	0.25	2.71
p Level		0.99	0.46	0.62	0.10

*Mean numbers of food servings are significantly different, ($p<.05$).

significantly influence the number of food servings EFNEP homemakers reported consuming at the last food recall.

Adult Male in Home

Families with no adult male living in the home reported consuming a larger number of food servings from three of the food groups (milk, meat, fruits and vegetables) in comparison to families with an adult male living in the home. However, none of the differences were significant at the .05 level (Table X).

Home Ownership

Home ownership was classified into those families which owned and those which rented their homes. Families who owned their homes reported consuming a larger number of food servings from the fruits and vegetables and breads and cereals food groups. Families who rented their homes reported consuming a larger number of food servings from the milk and meat food groups. A significant difference was shown only for the average number of food servings consumed from the fruits and vegetables food group. Homemakers whose families owned their home consumed a significantly larger number of fruits and vegetables servings than those who rented their homes.

Race

Homemakers were classified as either white or black. Black homemakers reported consuming a larger number of food servings from the meat and fruits and vegetables food groups. White families reported consuming a larger number of food servings from the breads

cereals food group. The average number of milk servings consumed were the same average number of servings for both white and black families. None of these differences achieved the .05 level of significance. Therefore, the number of food servings homemakers reported consuming at the last food recall was not significantly influenced by the race of the EFNEP homemakers.

Summary

The mean number of servings EFNEP homemakers consumed from each of four food groups at the last food recall was not significantly influenced by any of the homemakers' personal characteristics except home ownership. Homemakers who owned their homes reported at their last food recall consuming significantly larger numbers of servings from the fruits and vegetables food group than those homemakers who did not own their homes.

V. RELATIONSHIPS BETWEEN THE TOTAL NUMBER OF FOOD SERVINGS FROM FOUR FOOD GROUPS CONSUMED BY EFNEP HOMEMAKERS AT THE FIRST AND LAST FOOD RECALLS AND THEIR FAMILY CHARACTERISTICS

This section reports findings regarding relationships between the total number of food servings homemakers consumed from four food groups at the first and last food recalls (Table XI) and their family characteristics. Family characteristics studied included places of residence, whether or not family was receiving welfare and food stamps, whether or not the family raised a home garden, and the

TABLE XI

RELATIONSHIPS BETWEEN THE TOTAL NUMBER OF FOOD SERVINGS FROM FOUR FOOD GROUPS CONSUMED BY EFNEP HOMEMAKERS AT THE FIRST AND LAST FOOD RECALLS AND THEIR FAMILY CHARACTERISTICS

Family Characteristics	Respondents	Food Recall Reported	
		Mean No. First Food Servings	Mean No. Last Food Servings
Places of Residence			
Gov. Housing	31	7.19	9.03
Other	69	7.62	8.97
F Value		0.90	0.02
p Level		0.34	0.88
Families on Welfare			
Yes	18	6.72	8.72
No	82	7.66	9.05
F Value		3.02	0.42
p Level		0.09	0.52
Families On Food Stamps			
Yes	29	7.62	8.65
No	71	7.44	9.13
F Value		0.16	1.24
p Level		0.69	0.27
Families Grew Home Gardens			
Yes	44	7.68	8.93
No	56	7.34	9.03
F Value		0.66	0.07
p Level		0.42	0.79

TABEL XI (continued)

Family Characteristics	Respondents	Food Recall Reported	
Income		Mean No. First Food Servings	Mean No. Last Food Servings
Less than $1000	3	8.00	8.33
$1000 - 1999	3	7.00	8.67
$2000 - 2999	26	8.04	9.19
$3000 - 3999	13	6.46	9.69
$4000 - 4999	24	8.04	9.00
$5000 - over	30	7.03	8.63
F Value		1.72	0.68
p Level		0.14	0.64

income of the family. Total number of food servings was determined by counting the number of food servings consumed by homemakers from four food groups.

Places of Residence

Homemakers were classified as to those families who lived in government housing and those who lived in other types of housing. Families in both types of housing reported a larger number of food servings consumed at the last food recall than at the first recall. Families who lived in government housing reported a larger number of food servings at the last food recall than families living in other types. However, the place of residence did not significantly influence the total number of food servings homemakers reported having consumed at either the first or the last food recall time period. Significance of differences between food servings consumed at the first and last recall will be reported in the final section of this chapter.

Families on Welfare

Families who did not receive welfare reported a larger total number of food servings at both the first and last food recalls. However, these differences were not significant. Although not tested statistically, it is interesting that the average number of food servings consumed by homemakers who did receive welfare as well as those who did not receive welfare was higher at the last food recall than at the first recall.

Families on Food Stamps

Homemakers whose families who did not receive food stamps reported consuming a larger number of food servings from four food groups at the last food recall and fewer on the first recall. However, these differences were not significant at the .05 level. Therefore, whether or not the homemakers' families received food stamps did not significantly influence the total number of food servings consumed from four food groups at either the first or the last food recall.

Families Who Grew Home Gardens

Families who grew gardens reported consuming a larger number of food servings from four food groups at the first food recall but fewer at the last recall. However, differences were not significant. Therefore, whether or not EFNEP families had a home garden did not significantly influence the number of food servings from four food groups consumed by the homemaker at either the first or the last food recall.

Income

Income levels ranged from less than $1000 to $5000 and over. Income level had no significant influence on the total number of food servings homemakers reported consuming at the first food recall. At the last food recall, the total number of food servings consumed increased with income level except for the highest level of income ($5000-over) which showed a decrease. However, there was no significant difference in the total number of food servings

homemakers consumed at the last food recall as to the level of family income.

Summary

No significant differences were reported at either the first or last food recalls as to the total number of food servings consumed by EFNEP homemakers in relation to family characteristics of the homemakers.

VI. RELATIONSHIPS BETWEEN THE TOTAL NUMBER OF FOOD SERVINGS FROM FOUR FOOD GROUPS CONSUMED BY EFNEP HOMEMAKERS AT THE FIRST AND LAST FOOD RECALLS AND THEIR PERSONAL CHARACTERISTICS

This section presents results of an analysis between the total number of food servings from four food groups consumed by EFNEP homemakers at the first and the last food recalls and their personal characteristics (Table XII). Personal characteristics studied included whether or not an adult male lived in the home, education of the homemakers, home ownership, and race.

Total number of food servings was determined by counting food servings from four food groups consumed by homemakers.

Adult Male in Home

Homemakers with no adult male in the home reported a larger number of food servings at the first and last food recalls than homemakers having an adult male living in the home. However,

TABLE XII

RELATIONSHIPS BETWEEN THE TOTAL NUMBER OF FOOD SERVINGS FROM FOUR FOOD GROUPS CONSUMED BY EFNEP HOMEMAKERS AT THE FIRST AND LAST FOOD RECALLS AND THEIR PERSONAL CHARACTERISTICS

Personal Characteristics	Respondents	Food Recall Reported	
		Mean No. First Food Servings	Mean No. Last Food Servings
Adult Male In Home			
Yes	55	7.44	8.76
No	42	7.48	9.24
F Value		0.01	1.46
p Level		0.92	0.23
Education			
8th grade or less	72	7.54	8.97
Some high school	27	7.33	9.00
Beyond high school	1	8.00	10.00
F Value		0.12	0.14
p Level		0.88	0.87
Home Ownership			
Owner	14	7.71	9.36
Renter	85	7.46	8.96
F Value		0.18	0.51
p Level		0.67	0.48
Race			
White	63	7.84	9.02
Black	37	6.89	8.95
F Value		5.00	0.03
p Level		0.03*	0.86

*Mean numbers of food servings on first food recall are significantly different, ($p<.05$).

differences at either the first or last food recall were not significant at the .05 level.

Homemakers' Education

Education was classified into three categories (eighth grade or less, some high school, and beyond high school). Homemakers with education beyond high school reported more total food servings than either homemakers with eighth grade or less education or some high school education on both the first and last food recalls. However, differences were not significant. Therefore, education of the homemakers did not significantly influence the total number of food servings consumed at either the first or the last food recall time period.

Home Ownership

Families who owned their homes reported a larger number of food servings at the first and at the last food recalls than families who rented their homes. However, no significant difference in the number of food servings was found as to home ownership. Therefore, whether or not the homemakers' families owned their home did not significantly influence the total number of food servings consumed by homemakers at either the first or at the last food recall.

Race

Homemakers were classified as either white or black. White homemakers reported consuming a larger number of servings than black homemakers at both the first and last food recalls. A significant

difference (0.03) was shown on the first food recall. White homemakers reported consuming a significantly larger number of food servings at the first recall than did the black homemakers. Race did not significantly influence the total number of food servings consumed at the last food recall.

Summary

In summary of findings reported in this section, a significant difference in the total number of food servings consumed at the first recall was observed between white and black homemakers. White homemakers consumed a significantly larger number of food servings from four food groups than did black homemakers. Other personal characteristics did not significantly influence the total number of food servings consumed at either the first or the last food recall.

VII. MEAN NUMBER OF FOOD SERVINGS FROM EACH OF FOUR FOOD GROUPS CONSUMED BY EFNEP HOMEMAKERS AT FIRST FOOD RECALL COMPARED WITH LATER FOOD RECALLS

This section presents findings regarding change in mean number of food servings homemakers consumed from each of four food groups at first food recall compared with later food recalls (Table XIII). The t-test was used to analyze the significant differences regarding changes in the mean number of food servings from each food group at different periods.

TABLE XIII

MEAN NUMBER OF FOOD SERVINGS FROM EACH OF FOUR FOOD GROUPS CONSUMED BY EFNEP HOMEMAKERS AT FIRST FOOD RECALL COMPARED WITH LATER FOOD RECALLS

Food Groups and Recalls	Mean No. Servings	t test	d.f.	p level
Milk				
First Food Recall	0.63			
Second Food Recall	0.81	1.86	99	0.07
Third Food Recall	0.81	1.78	99	0.08
Fourth Food Recall	0.66	0.26	99	0.79
Fifth Food Recall	0.89	2.41	99	0.02*
Meat				
First Food Recall	2.29			
Second Food Recall	1.81	4.42	99	0.00*
Third Food Recall	1.84	4.33	99	0.00*
Fourth Food Recall	1.76	4.38	99	0.00*
Fifth Food Recall	1.85	4.16	99	0.00*
Fruits and Vegetables				
First Food Recall	2.30			
Second Food Recall	2.58	1.73	99	0.09
Third Food Recall	2.37	0.42	99	0.68
Fourth Food Recall	2.60	1.77	99	0.08
Fifth Food Recall	2.78	2.90	99	0.01*
Breads and Cereals				
First Food Recall	2.86			
Second Food Recall	3.15	2.37	99	0.02*
Third Food Recall	3.34	3.65	99	0.00*
Fourth Food Recall	3.33	3.58	99	0.00*
Fifth Food Recall	3.38	4.10	99	0.00*

TABLE XIII (continued)

Food Groups and Recalls	Mean No. Servings	t test	d.f.	p level
Total Servings From All Food Groups				
First Food Recall	7.49			
Second Food Recall	8.39	3.48	99	0.00*
Third Food Recall	8.49	3.48	99	0.00*
Fourth Food Recall	8.39	3.22	99	0.00*
Fifth Food Recall	8.99	5.45	99	0.00*

*Mean numbers of servings are significantly different from the mean number at the first food recall ($p<.05$).

Milk

The mean number of servings from the milk group increased from the first recall to the second. It remained the same mean until the fourth food recall. Then the mean number of milk servings decreased at the fourth food recall but increased again on the fifth or final food recall. Only the final recall differed significantly from the first recall. Therefore, EFNEP homemakers consumed a significantly larger number of servings of milk after being in the EFNEP for 2 years than they were consuming when they entered the program.

Meat

The mean number of meat servings consumed by homemakers was reported highest at the first food recall. As compared to the first, the mean number of servings of meat consumed by EFNEP homemakers significantly decreased at each of the subsequent four recall periods. The mean number of meat servings remained adequate, however, for the subsequent four food recall periods.

Fruits and Vegetables

The mean number of fruits and vegetables servings consumed by homemakers increased from the first recall to the second food recall and remained above the first recall at the end of each 6-months time period thereafter. However, as compared to the first recall, only the final recall was significantly different from the first. Therefore, EFNEP homemakers at the end of the 2 years were consuming significantly larger numbers of fruits and vegetables servings than they were when they first entered EFNEP.

Breads and Cereals

The mean number of servings consumed from the breads and cereals food group increased fairly consistently from the first food recall to the final recall. Differences in the number of breads and cereals servings consumed at each food recall were significant from the number consumed when the homemakers entered EFNEP.

Total Servings From All Food Groups

The mean number of servings homemakers consumed from four food groups increased fairly consistently from the first food recall to the final recall. As compared to the total number of servings consumed from four food groups at first recall, homemakers after 6 months in the EFNEP program consumed a significantly larger number of servings.

Summary

Changes in mean number of food servings consumed from each food group at first food recall compared with the next four food recalls were significantly different for each food group and for all food groups combined. Comparisons between the first food recall to the fifth food recall were significantly higher in all food groups except the meat group which was significantly lower. Servings from the meat group were highest at the first food recall but remained adequate for the subsequent four food recall periods.

VIII. RELATIONSHIPS BETWEEN WHETHER OR NOT HOMEMAKERS CONSUMED THE RECOMMENDED NUMBER OF FOOD SERVINGS FROM EACH OF FOUR FOOD GROUPS AT THE FIRST AND LAST FOOD RECALLS

This section presents findings regarding the relationships between the number of recommended food servings consumed from each of four food groups at the first and last food recall. Chi square was used to analyze the significance of relationships between whether or not homemakers consumed the recommended number of food servings from each of four food groups (i.e., milk--two servings; meat--two servings; fruits and vegetables--four servings; breads and cereals--four servings) at the first food recall and again at the last food recall (Table XIV).

Milk

The number of homemakers who reported no change in recommended milk servings was 60 homemakers. Fifty-six homemakers did not report recommended milk servings on either the first or last food recalls. Four homemakers reported recommended milk servings on the first and last food recall. Fifteen homemakers who reported recommended milk servings on the first food recall did not have recommended milk servings on the last food recall. Twenty-five homemakers who did not report recommended milk servings on the first food recall did report recommended milk servings on the last food recall. A gain of 10 homemakers who consumed the recommended number of milk

TABLE XIV

RELATIONSHIPS BETWEEN WHETHER OR NOT HOMEMAKERS CONSUMED THE RECOMMENDED NUMBER OF FOOD SERVINGS FROM EACH OF FOUR FOOD GROUPS AT THE FIRST AND LAST FOOD RECALLS

	Last Food Recall				
	No		Yes		Total
First Food Recall	No.	%	No.	%	No.
Milk					
No	56	78.9	25	86.2	81
Yes	15	21.1	4	13.8	19
Totals	71	100	29	100	
x^2		0.32			
p Level		0.57			
Meat					
No	12	57.1	20	25.3	32
Yes	9	42.9	59	74.7	68
Totals	21	100	79	100	
x^2		6.33			
p Level		0.01*			
Fruits and Vegetables					
No	44	81.5	32	69.6	76
Yes	10	18.5	14	30.4	24
Totals	54	100	46	100	
x^2		1.33			
p Level		0.25			
Breads and Cereals					
No	33	75.0	33	58.9	66
Yes	11	25.0	23	41.1	34
Totals	44	100	56	100	
x^2		2.16			
p Level		0.14			

*The Chi square value is significant.

servings was shown from the first food recall to the last food recall. These changes were not significant at the .05 level.

Meat

Seventy-one homemakers reported no change from the first food recall to the last food recall in whether or not they consumed the recommended number of meat servings. Twelve homemakers did not consume the recommended number of meat servings at either the first or the last food recall while 59 homemakers were consuming the recommended number of meat servings at both the first and the last food recall. Nine homemakers who reported consuming the recommended number of meat servings on the first food recall were not doing so on the last food recall. Twenty homemakers reported that they were not consuming the recommended number of meat servings at the first recall but were doing so at the last recall. These differences were significant at the .01 level. These data indicate that more EFNEP homemakers were consuming the recommended number of meat servings on the last food recall than was true on the first recall.

Fruits and Vegetables

Fifty-eight homemakers reported no change in whether or not they consumed the recommended number of fruits and vegetables at the first and the last food recall. Forty-four of these 58 homemakers were not consuming the recommended number of servings at either the first or the last recall, while 14 of them were receiving the recommended number of servings at both the first and last food

recall. Ten homemakers on the first food recall reported receiving the recommended number of servings of fruits and vegetables while 32 did so on the last food recall. A net gain of 22 homemakers reported receiving the recommended servings of fruits and vegetables on the last food recall in contrast to the first food recall. However, these differences were not significant at the 0.05 level.

Breads and Cereals

Fifty-six homemakers reported no change in whether or not they consumed the recommended number of servings from the breads and cereals food group. The number who did not report recommended breads and cereals servings was 33 homemakers on both the first and last food recalls. Twenty-three homemakers were receiving the recommended number of servings of breads and cereals on both the first and last food recalls. Eleven homemakers reported recommended breads and cereals servings on the first food recall but not on the last food recall. Thirty-three homemakers reported recommended breads and cereals servings on the last food recall but not on the first. This was an increase of 22 homemakers reporting recommended breads and cereals servings from the first food recall to the last food recall. There was no significant relationship between the number of homemakers who reported recommended breads and cereals servings on the first and last food recalls.

Summary

The relationships between whether or not homemakers consumed recommended food servings from each of four food groups at the first

and last food recalls were not significantly related except for the meat group. The number of homemakers with recommended meat servings for the first food recall but not on the last food recall was nine in comparison to 20 homemakers who were consuming recommended meat servings on the last food recall but not on the first food recall.

CHAPTER V

SUMMARY OF MAJOR FINDINGS, IMPLICATIONS, AND RECOMMENDATIONS

I. PURPOSE

The purpose of this study was to determine relationships between the number of food servings from four food groups consumed by EFNEP homemakers in Lincoln County Tennessee over a 30-months time period and personal and family characteristics. In addition, the number of home visits received by homemakers from Program Assistants in relation to diet adequacy and personal and family characteristics was analyzed.

Specific Objective

The specific objectives were:

1. To determine relationships between the number of food servings from each of the four food groups consumed by homemakers over a 30-months time period and their personal and family characteristics.
2. To determine relationships between the number of home visits homemakers received from program assistants and homemakers personal and family characteristics.
3. To determine relationships between the number of home visits homemakers received from program assistants and the number of food servings consumed by homemakers.

II. METHODS OF PROCEDURE

The Population and Sample

The population and sample included all homemakers in Lincoln County Tennessee who had been enrolled in the EFNEP program 30 months or more. One hundred EFNEP homemakers met this requirement for the study.

The Data

Data were obtained from six family records on each homemaker which were on file in the Lincoln County Extension Office. The record forms included two major parts, Family Record--Part A and Family Record--Part B. Family Record--Part A included a description of the family (ie names, ages, sex, address, education level of homemakers, places of residence, participation in selected governmental programs and the initial enrollment date of homemaker in EFNEP). Family Record--Part B included food consumption for the prior 24 hours, family income and the number of the food record. Food recalls were taken at the beginning of the enrollment period and at the end of each 6 months.

Data from the family records were coded, recorded and punched on data cards for statistical analysis by the University of Tennessee Computer Center. The analysis of variance F Tests, t test and Chi square tests were used to determine significance of relationships between variables. The .05 level was used to assess assumed null hypothesis.

III. MAJOR FINDINGS

Relationships Between The Total Number of Home Visits Received From Program Assistants Over A Thirty Months Time Period and Family Characteristics Of The EFNEP Homemakers

1. Place of Residence did not have a significant influence on the number of home visits EFNEP homemakers received from program assistants during the 30-months in the program.
2. Whether or not families received welfare was significantly related to the number of home visits received from program assistants. Those on welfare received significantly fewer visits than these families not on welfare.
3. Whether or not families received food stamps did not significantly influence the number of home visits EFNEP families received.
4. Whether or not families had home gardens was not significantly related to the number of home visits received from program assitants.
5. Family Income was not significantly related to the number of home visits received from program assistants.

Relationships Between The Number Of Home Visits EFNEP Homemakers Received From Program Assistants By 6-Months Time Periods and Family Characteristics Of Homemakers

1. Families Place of Residence was significantly related to the number of home visits received from program assistants during the first 6 months in the EFNEP program. Families living in government housing received slightly more home visits the first 6 months than families not living in government housing. These differences were not significant, however at other 6 months time periods.
2. Whether or not families were on welfare was significantly related to the number of home visits received from program assistants at the end of 18 months and 24 months. Families not on welfare received more home visits except during the initial 6 month time period.
3. Except for the 18 to 24 months time period, whether or not families received food stamps did not have a significant influence on the number of home visits received from program assistants. Families not receiving food stamps received significantly more home visits during the 18 to 24 months time period than did those who did receive food stamps.

4. Although homemakers who grew gardens tended to receive more home visits than homemakers who did not grow gardens, differences were not significant.
5. Family income was significantly related to the number of home visits homemakers received during three of the five 6 months time periods studied (ie 12-18 months, 18-24 months and 24-30 months). The number of home visits tended to increase significantly as the income of families also increased.

Relationships Between The Total Number of Home Visits Homemakers Received From Program Assistants Over A 30-Months Time Period And Personal Characteristics Of The EFNEP Homemakers

1. Homemakers with or without an adult male in home showed no significant relationship to the total number of home visits received over a 2 year time period.
2. The education level of homemakers was not significantly related to the total number of home visits received over a 2 year time period.
3. There was not a significant relationship between whether or not homemakers owned or rented their house and the total number of visits received over a 2 year time period.

4. There was not a significant relationship between the race of the homemaker and the total number of home visits received from program assistants at the end of the 2 year time period studied.

Relationships Between The Number Of Home Visits EFNEP Homemakers Received From Program Assistants By 6-Months Time Periods And Personal Characteristics Of Homemakers

1. There was not a significant relationship between the number of home visits received from program assistants during any of the five time periods studied and whether or not an adult male was in the home.
2. The education level of the homemaker was not significantly related to the number of home visits received from program assistants during any of the five time periods studied.
3. Whether or not a homemaker owned or rented a home did not significantly influence the number of home visits received from program assistants during any of the time periods studied.
4. The race of the homemaker did significantly influence the number of home visits received during two of the five 6-months time periods studied. Black homemakers received more home visits during the initial 6-months

(0-6 mos.) than white homemakers. White homemakers received more home visits during the 12-18 months time period than did black homemakers.

Relationships Between The Total Number Of Home Visits Received From Program Assistants And The Total Number Of Food Servings From Four Food Groups Consumed By EFNEP Homemakers At First And Last Food Recall

1. There was a significant relationship between the total number of home visits made by program assistants during the first 6 months homemakers were in the program and the total number of food servings homemakers were consuming at the end of this period. The number of food servings consumed tended to increase as the number of home visits increased up to 6 visits, then food servings consumed decreased with increasing home visits.
2. During the last 6 months of enrollment in the EFNEP program, the number of food servings homemakers consumed was significantly related to the number of home visits received. The number of servings consumed tended to increase as the number of home visits increased.

Relationships Between The Number Of Home Visits Homemakers Received From Program Assistants And Whether Or Not The Homemakers Consumed The Recommended Number Of Food Servings From Each Of Four Food Groups At The End Of Five Time Periods

1. There was not a significant relationship between whether or not homemakers consumed the recommended number of milk servings and the number of home visits received from program assistants during any of the five time periods studied.
2. The relationship between whether or not homemakers consume the recommended number of meat servings and the number of home visits they received from program assistants was significant during the first six months of enrollment. Homemakers who did not consume the recommended number of meat servings received more home visits than homemakers who did consume recommended number of meat servings. During the last 30 months of enrollment, a significant relationship was shown between the number of home visits received by homemakers and whether or not the homemakers consumed the recommended number of meat servings. More home visits were made to homemakers who reported consuming the recommended number of meat servings than to homemakers who did not

consume the recommended number of meat servings. For all other 6 month periods of enrollment (ie 12 months, 18 months, and 24 months), the number of home visits made to homemakers was not significantly related to whether or not they consumed the recommended number of meat servings.

3. At the end of the 12 months period of enrollment, homemakers who consumed the recommended number of fruits and vegetables servings received significantly more home visits than homemakers who did not report recommended fruits and vegetables. There was not a significant relationship between whether or not homemakers consumed recommended fruits and vegetables and the number of home visits for the other 6 months time periods (ie 6 months, 18 months, 24 months and 30 months.)
4. The relationship between whether or not the homemakers consumed the recommended number of breads and cereals servings and the number of home visits they received from program assistants was significant at the end of the first 6 months of enrollment. For all other 6 months time periods of enrollment, there was not a significant relationship. At the end of the first 6 months, homemakers who received more home visits consumed fewer servings of breads and cereals.

Relationship Between Mean Number Of Servings Homemakers Consumed From Each Of Four Food Groups Upon Entering The EFNEP Program And Their Family Characteristics

1. Place of residence was not significantly related to the mean number of servings homemakers consumed from any of four food groups upon entering the EFNEP program.
2. Whether or not a family was on welfare was not significantly related to the mean number of servings homemakers consumed from any of four food groups upon entering the EFNEP program.
3. There was not a significant relationship between whether or not families were on food stamps and the mean number of servings from any of four food groups upon entering the EFNEP program.
4. A significant relationship was found between whether or not families had home gardens and the number of food servings homemakers consumed from the fruits and vegetables group. Families who grew home gardens reported consuming more food servings from the fruits and vegetables than families who did not grow home gardens upon entering the EFNEP.
5. Family income was significantly related to the number of fruits and vegetables homemakers consumed when

entering the EFNEP program. Families with incomes of $4000-4999 reported the largest number of mean servings from the fruits and vegetables food group.

Relationships Between Mean Number Of Servings Homemakers Consumed From Each Of Four Food Groups Upon Entering The EFNEP Program And Their Personal Characteristics

1. The relationship between whether or not there was an adult male in the home and the mean number of servings homemakers consumed from any of four food groups was not significant upon entering the EFNEP program.
2. Education was not significantly related to the mean number of servings homemakers consumed from any of four food groups upon entering the EFNEP program.
3. There was a significant relationship between whether or not homemakers rented their homes and the mean number of servings consumed from the meat group. Homemakers who rented homes reported a larger mean number of meat servings upon entering the EFNEP program than homemakers who owned homes.
4. There were no significant relationships between race and mean number of servings consumed from the food groups except breads and cereals. White homemakers

consumed significantly more food servings of breads and cereals upon entering the EFNEP program than did the black homemakers.

Relationships Between Mean Number Of Servings Homemakers Consumed From Each Of Four Food Groups On The Last Food Recall And Their Family Characteristics

1. There were significant relationships between the mean number of both the milk and meat food groups and the place of residence on the last food recall. EFNEP families living in government housing consumed significantly more milk servings than families in other types of housing. Families in other types of housing consumed significantly more breads and cereals servings than families in government housing at the end of 2 years in the EFNEP program.
2. Whether or not families were on welfare did not significantly influence the mean number of servings homemakers consumed from any of four food groups after 2 years in the EFNEP program.
3. Whether or not families were on food stamps did not show a significant relationship with the mean number of food servings consumed from any of four food groups on the last food recall.

4. There was a significant relationship between the number of milk servings consumed on the last food recall and whether or not the EFNEP families grew a garden. Significantly more milk servings were consumed by homemakers who did not grow a garden.
5. The income level of EFNEP families did not show a significant relationship with the mean number of servings homemakers consumed from any of four food groups on the last food recall.

Relationships Between Mean Number Of Servings Homemakers Consumed From Each Of Four Food Groups On The Last Food Recall And Their Personal Characteristics

1. There was not a significant relationship between the mean number of servings homemakers consumed from any of four food groups on the last food recall and whether or not an adult male was in the home.
2. There was not a significant relationship between the mean number of servings homemakers consumed from any of four food groups on the last food recall and the education level of the homemakers.
3. There was a significant relationship between the mean number of fruits and vegetables servings homemakers consumed on the last food recall and whether or not homemakers owned their own homes. Homemakers who

owned their homes consumed a larger mean number of fruits and vegetables servings than homemakers who rented homes. Other food groups were not significantly related to home ownership.

4. There was not a significant relationship between the mean number of servings homemakers consumed from any of four food groups on the last food recall and the race of the homemakers.

Relationships Between The Total Number Of Food Servings From Four Food Groups Consumed By EFNEP Homemakers At The First And Last Food Recalls And Their Family Characteristics

1. There was not a significant relationship between the total number of food servings consumed at either the first or the last food recalls and the Homemakers' Place of Residence.
2. There was not a significant relationship between the total number of food servings homemakers consumed at either the first or the last food recalls and whether or not families were on welfare.
3. There was not a significant relationship between the total number of food servings homemakers consumed at either the first or the last food recalls and whether or not families received food stamps.

4. There was not a significant relationship between the total number of food servings consumed by homemakers at either the first or the last food recalls and whether or not families grew home gardens.
5. There was not a significant relationship between the total number of food servings homemakers consumed at either the first or the last food recalls and the income levels of EFNEP families.

Relationships Between The Total Number Of Food Servings From Four Food Groups Consumed By Homemakers At The First And Last Food Recalls And Their Personal Characteristics

1. There was not a significant relationship between the total number of food servings homemakers consumed from four food groups at the first or last food recalls and whether or not an adult male was in the home.
2. There was not a significant relationship between the education level of EFNEP homemakers and the total food servings homemakers consumed from four food groups at the first or last food recalls.
3. There was not a significant relationship between total food servings homemakers consumed from four food groups at the first or last food recalls and

whether or not homemaker owned or rented their homes. EFNEP homemakers who owned homes reported slighter higher total food servings from four food groups at the first and last food recalls but a significant difference was not shown.

4. Race of homemakers on the first food recall showed a significant relationship to the total number of food servings homemakers consumed from four food groups. White homemakers consumed more food servings than black homemakers. On the last food recall, race was not significantly related to the total food servings consumed from four food groups.

Mean Number Of Food Servings From Each Of Four Food Groups Consumed By EFNEP Homemakers At First Food Recall Compared With Later Food Recalls

1. As compared to the first food recall, homemakers consumed significantly more servings of milk at the last food recall.
2. The mean number of meat servings consumed decreased significantly at each food recall compared to the first food recall.
3. The mean number of fruits and vegetables servings consumed by homemakers increase significantly at the last recall as compared to the first.

4. The mean number of breads and cereals servings consumed by homemakers was greater at each recall period as compared to the first recall.
5. The mean number of total servings from four food groups was significantly greater at each food recall as compared to the first food recall.

Relationships Between Whether Or Not Homemakers Consumed The Recommended Number Of Food Servings From Each Of Four Food Groups At The First And The Last Food Recalls

1. There was not a significant relationship between whether or not homemakers consumed the recommended number of milk servings at first and last food recalls. A gain of 10 homemakers reported the recommended number of milk servings from the first recall to the last recall.
2. There was a significant relationship between whether or not homemakers consumed the recommended number of meat servings at the first and last food recalls.
3. There was not a significant relationship between whether or not the homemakers consumed the recommended number or fruits and vegetables servings at the first and last food recalls.
4. There was not a significant relationship between whether or not homemakers consumed the recommended number of servings of breads and cereals at the first and last food recalls.

IV. IMPLICATIONS, CONCLUSIONS AND RECOMMENDATIONS

Overall, regarding the number of home visits EFNEP homemakers received from program assistants, the data seemed to indicate that homemakers did not receive an equal number of visits. During the first 6 months in the program about 69 percent of the homemakers received fewer than six visits while 18 percent received over six visits. During the last 6 months in the program (24 to 30 months), 48 percent of the homemakers received fewer than six visits from program assistants, while only two percent received over six visits. Generally, homemakers who lived in government housing, those who received welfare and those who received food stamps, received fewer visits than did families not receiving government services. Conversely, families who grew home gardens tended to receive more home visits from program assistants. Families with higher incomes, also, received more home visits in comparison to families with lower income levels. Regarding personal characteristics of the EFNEP homemakers and the number of home visits they received, the data indicated generally that homemakers without a male living in the home, those with less education, those who rented their homes and those who were black received fewer visits from program assistants.

Although differences in numbers of visits received were considered minor and in most instances not statistically significant, the consistency of finding suggests that this situation should be investigated further at the county level.

Looking at findings regarding the number of food servings consumed by EFNEP homemakers from an overall perspective, the data seemed to indicate substantial gain in the adequacy of homemakers' diets between entering the program and the time they left the program. However, as measured by the food recalls, the homemakers diets appeared to be inadequate in most of the basic food groups even at the conclusion of the program. This conclusion is based upon the general recommendation of daily consumption of two servings from the milk group, two servings from the meat/fish, poultry and beans group, four servings from the fruits/vegetables group and four servings from the breads/cereals group. At the final food recall, the data suggested that homemakers' diets were perhaps most inadequate in the milk group. Overall, the adequacy of homemakers' diets did not seem to be influenced significantly by their personal or their family characteristics or the number of home visits they received from program assistants.

In terms of whether or not homemakers were consuming the recommended number of servings from the various food groups at the first food recall compared to the last food recall, the data indicated the homemakers made the most improvement in the fruits/vegetables and the breads/cereals food group and least improvement in the milk and meat food groups. Eighty-one percent of the homemakers were not consuming the recommended number of servings of milk at the first food recall compared to 71 percent at the last food recall. In the meat group, 32 percent were not consuming

the recommended number of servings at first recall compared to 21 percent at last recall. At first recall, 76 percent of the homemakers were not receiving the recommended number of servings of fruits/vegetables compared to 54 percent at the last recall. Likewise, 66 percent of the homemakers were not consuming the recommended number of servings from the breads/cereals group at first recall compared to 44 percent at the last food recall.

Briefly, these data suggest that homemakers' diets improved the least amount in the consumption of milk and this is also the area needing most improvement when they left the program. Although little improvement was noted in the meat group, almost 80 percent of the homemakers were consuming the recommended number of servings at the end of the program. In the other food groups, there was about a 22 percent improvement in the percent of homemakers with adequate diets, yet approximately half of them still were not consuming the recommended number of servings (i.e. fruits/vegetables, and breads/cereals) when they left the program.

Finally, data presented in this study seem to suggest a strong need among homemakers after 30 months in the EFNEP to continue to improve their diets. Therefore it is highly recommended that Extension find ways to include EFNEP graduates in its ongoing health and nutrition program.

V. RECOMMENDATIONS FOR FURTHER STUDIES

1. Study the effects of: a) the season of the year upon the consumption of vegetables and fruits; and b) the effects of owning dairy cows upon the consumption of milk.
2. Compare the adequacy of diets among: a) EFNEP homemakers and home demonstration club members; and b) among EFNEP and general homemakers.
3. Characterize EFNEP homemakers who make most improvement and those who make least improvements in their diets at selected time periods of enrollment in the program.

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APPENDIX

OMB NO. 40R3610

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)

(b) ☐ Black (not of Hispanic origin)

(c) ☐ Hispanic

(d) ☐ American Indian/Alaskan Native

(e) ☐ Asian or Pacific Islander

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

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 on 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:				
	(5)	(6)	(7)	(8)
TOTAL NO. OF SERVINGS				
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

VITA

Amelia Margaret Haynes was born to Mr. and Mrs. Graham Haynes on September 30, 1952, in Montgomery County, Tennessee. She attended public schools in that county and graduated from Clarksville High School in June 1970.

She attended UT Martin in Martin Tennessee in General Home Economics for two years. She transferred to the University of Tennessee, Knoxville, where she received a Bachelor of Science Degree with a major in Home Management, Family Economics and Household Equipment for the College of Home Economics in 1974. During the course work at UT Knoxville, she did field training with the University of Tennessee Agriculture Extension Service in Robertson County.

She was employed by the University of Tennessee Agricultural Extension Service in Lincoln County with responsibility for Adult and Youth Audiences in the Expanded Foods and Nutrition Program in 1975.

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