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Date November 10, 1986

# A COMPARISON OF CHARACTERISTICS, FOOD CONSUMPTION, NUTRITIONAL KNOWLEDGE AND FOOD BEHAVIOR PRACTICES OF EXTENSION HOMEMAKER CLUB MEMBERS AND EXPANDED FOOD AND NUTRITION EDUCATION PROGRAM PARTICIPANTS IN HAWKINS COUNTY, TENNESSEE

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# ABSTRACT

The purpose of this study was to compare food consumption, nutritional knowledge, and food behavior practices of Extension Homemaker Club Members (EHCM) and Expanded Food and Nutrition Education Program Participants (EFNEPP) in Hawkins County, Tennessee.

The sample of this study included 100 homemakers, i.e. 50 EHCM and 50 EFNEPP. Instruments used for interviews were the Food Behavior Checklist and the 24-Hour Food Recall.

Frequencies, T-test and Chi-square were the statistics used to determine strengths in the relationships.

Findings of the study in relation to personal/family characteristics included the following: EFNEP homemakers were younger and most all were not employed, more persons lived in the EFNEPP households, more lived on farms, more received food stamps and income was less.

In the comparison of audience and food consumption , a signifily higher number of EFNEPP consumed the recommended two servings daily of milk and meat. The consumption of fruits/vegetables and bread/cereals was not significantly related to the audience. The EHCM living in non-farm areas consumed more servings of meat, fruits/vegetables and breads/cereals than did the EFNEPP.

In the comparison of audience and Knowledge of Nutrition, a higher percentage of the EFNEPP were able to answer the indicators correctly, except for the high and low calorie foods, than did the EHCM. The mean score for the EHCM on the remaining sections of the Food Behavior Checklist were higher than for the EFNEPP.

Implications for the study indicated that since the audiences differed in age and number in household, programs be planned for specific audience needs. Both audiences consumed less than the recommended number of servings for fruits/vegetables and more for bread/cereal. Considerations might be given to exploring ways of getting individuals to adopt practices of consuming the recommended number of servings.

Recommendations for further study could include: effective teaching methods for specific audiences, study affect of intensive versus extensive nutrition training, and methodology for obtaining data.

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# CHAPTER I

# INTRODUCTION

## I. THE NUTRITION SITUATION

The goal of the Cooperative Extension Service's food and nutrition program is to improve the health and nutritional status of individuals and families. Included in this goal are the objectives to improve diets; to help consumers cope with inflation; and to improve food-purchasing practices (6:21).* Food, nutrition, and health, as one entity, has been defined as one of five focus areas for the 80's by a study committee of the United States Department of Agriculture (USDA) (5:12).

Many factors affect the dietary habits and practices of individuals. Food Patterns of individuals are affected not only by what they hear from nutritionists, but by what they understand about food. It is clear that the increasingly vast supply of foods in the marketplace makes selections complex. Also, it appears that consumers may be becoming more dependent on nutrient value decisions that are made for them rather than by them (4:41). In short, three societal changes have been identified which now are affecting food consumption patterns. These are the increase of items on the grocery shelves by tenfold in the last forty years, the change in structure of meal patterns, and the popular fast food sources for meals (9:31)

*Numbers in parantheses refer to alphabetically listed items in the Bibliography; those after the colon are page numbers.

In the Extension Service's aim of helping families and individuals to become self-reliant, nutrition education is an essential factor (5:12).While poor diets are more common among low income families, they are not limited to this segment of society. Nutrition education is essential for all population segments (5:71).

The concern of the present study was to compare the nutritional knowledge and recommended practice use of two specific Extension clientele groups, Extension Homemaker Club Members (EHCM) and Expanded Food and Nutrition Education Program Participants (EFNEPP) in Hawkins County, Tennessee. Extensive and intensive approaches to nutrition education had been employed with these two groups, respectively, in prior years. Hawkins County Extension Homemaker Clubs designate specific members to be trained as volunteer nutrition leaders by the Extension agent. Such leaders, in turn, present lessons to their club members, usually once or twice a year.

EFNEPP in Tennessee has been provided for low income homemakers in selected counties since 1968. It began in Hawkins County in 1969. In EFNEP, lessons on nutrition are presented in each homemaker's home monthly or in small group meetings periodically. A homemaker may be enrolled in EFNEP for approximately eighteen months to two years before graduating or being dropped.

It was desired to compare these two important Extension- related groups on responses to the EFNEP 24-hour Food Recall and the Food Behavior Checklist. Both of these instruments were developed nationally to be used in measuring progress in EFNEP.

Since both sets of homemakers had received nutrition information in on-going educational programs, the aim of this study was to note any differences in the responses given. It was felt this might be helpful in planning future educational programs.

## II. NEED FOR THE STUDY

The nutritional status of the people has become a national concern reflecting problems both of malnutrition and over nutrition. However, the major concern of nutritionists has been the prevention of nutritional deficiency. It has been to assure that all receive at least adequate daily intakes of other nutrients (6:9). Inadequate intakes of one or more nutrients cannot be compensated for by substituting adequate intakes of other nutrients (16:36-37). In order for clientele to understand the relationship of nutrients to foods, more knowledge is is needed by homemakers and their families.

Continual evaluation is necessary for effective programs. The Extension Service evaluates its programs and their emphases so that they will continue to have viable impacts. The present study was designed to help determine the relative effectiveness of two Extension approaches to nutrition education programs in a Tennessee county.

## III. PURPOSE

The purpose of this study was to compare nutritional knowledge and food behavior practices of EHCMs and EFNEPPs. This includes the

following specific objectives: 1) to determine differences in selected characteristics of EHCMs and EFNEPPs; 2) to determine differences in scores of EHCMs and EFNEPPs on the Food Behavior Checklist of selected practices; and 3) to determine differences in dietary intake between those in the two groups based on the 24-hour Food Recall.

## IV. DEFINITION OF TERMS

In order to better understand the terms used in this study, certain ones are defined as follows:

1) Adequate diet-An adequate diet, as related to this study, consists of two or more servings daily from both the milk and meat groups and four or more servings daily from both the bread/cereal and fruits/vegetables groups. This has been commonly referred to as the Basic Four. A fifth group, fats and oils, was not included in the present study.

2) Expanded Food and Nutrition Education Program Participants (EFNEPP)-Participants are low income homemakers who partidipate in a federally-funded program designed to improve the diets of their families through education. The program is carried out by the Extension Service. They may receive educational assistance for up to two years. Education is provided by program assistants trained by an Extension home economist.

3) Extension Homemaker Club Members (EHCM)- Homemakers are enrolled in on-going educational programs supervised by an Extension

home economist. Clubs meet monthly with officers carrying out activities as outlined in their constitution and by-laws. Some remain members for life. In most previous studies, this audience was referred to as Home Demonstration Club Members (HDCM).

4) Food Behavior Checklist-This is 35 selected food knowledge and behavior practices used to document progress of the EFNEP homemaker at six month intervals. Thirty practices were included in this study.

5) Food Recall-This term refers to a self-reported record of foods consumed by the homemaker during the previous 24 hours. This record is taken at enrollment and at six month intervals thereafter. Information is collected by the program assistant through personal interviews during regular home visits. It includes all meals, beverages, and snacks including the meal consumed nearest to the interview. This 24-hour Food Recall was used both with the EHCMs and EFNEPP for the present study.

6) Program Assistant-A paid para-professional employed by the Agricultural Extension Service to teach nutrition-related information to low income families. Program assistants are supervised by an Extension Home Economist.

## V. METHODS OF PROCEDURE

### The Sample

The sample for this study was taken from 252 Extension Homemaker Club Members and 133 Expanded Nutrition Education Program Participants in Hawkins County. The "nth" number technique was used in selecting

the interviewees. Survey information was secured through interviews with the homemakers.

Two random samples were used for the present study. The sample consisted of 50 Extension Homemakers Club Members and 50 Expanded Food and Nutrition Education Program Participants.

## The Interview Schedules

The EFNEP 24-hour Food Recall and the Food Behavior Checklist, two nationally developed instruments, were used to obtain data. A copy is included in the Appendix. The 24-hour Food Recall dealt with a record of foods consumed by the homemakers in the previous 24 hours. The Food Behavior Checklist dealt with 35 selected food behavior practices, of which 30 were included in this study.

## Data Collection

Information was secured by personal interview with the clientele. The EHCM were interviewed by this researcher. The EFNEPP were interviewed by their program assistant.Assurance was given that the identities of the participants would remain confidential. The homemakers were told that the information would be used in program planning.

## Handling of Data and Analysis

The interview data also were tabulated by the researcher. Characteristics, nutritional practices, and dietary intake items were compared for the two groups.

Data were summarized in tables showing numbers, percents, and means. Chi-square and T-Test were made where appropriate. Probability of .05 or less was considered to be significant.

# CHAPTER II

## REVIEW OF RELATED STUDIES

During 1967 the Department of Health, Education, and Welfare laid plans for conducting a ten-state survey for the purpose of obtaining information concerning malnutrition and hunger in the United States (15:1). This was the largest national survey ever conducted in the United States. Results showed that a significant proportion of the sample surveyed was malnourished or at a high risk of developing nutritional problems (15:8).

Some of the findings of the Ten-state Survey have definite implications for educational programs. Many persons were found to have made poor food choices and showed poor use of money available for food. Lack of specific nutrients varied within groups and locales, but significant deficiencies were found in Vitamin A, iron, and even caloric intake (15:8).

Further in the Surgeon General's Report on Health Promotion and Disease Prevention in 1979, emphasis was placed on the general concern of the American people to improve their health status. Improvement in nutrition was cited as one of the ways of dealing with severe health problems. Thus, prevention was identified as the key (6:6).

The USDA is charged with the task of ensuring a continual food supply that is adequate, safe, and nutritionally balanced. The term "nutrition " is broadly defined to include education and research on specific nutrient requirements and the relation of diet to disease. In

addition, the purpose of nutritional education is given as a charge "to communicate research-derived nutritional concepts and dietary guidance to consumers to help them make informed food choices and maintain diets which promote good health (4:iii-v). Thus, USDA guidelines continue to empahsize the need for the Cooperative Extension Service to disseminate information to individuals and families (2:3). Relevant studies will be discussed below under the following headings: 1) audience characteristics, 2) recommended food practices, and 3) dietary intake.

## I. AUDIENCE CHARACTERISTICS

### Age

In 1976 Smith (12:29-30) conducted a study comparing nutritional practices and characteristics of Home Demonstration Members (HDCM) and Public Housing Homemakers (PHH) in Giles County, Tennessee. The mean age for the total sample was 65 years. The mean age for PHHs was slightly older at 67 years. Only 20 percent in each group was under 35 years of age.

Earlier, 1969, Davis (1:26) studied characteristics and nutritional practices of Negro homemakers residing in Hardeman County, Tennessee. The sample included homemakers residing in the Bolivar Housing Authority, members of HDCs, and county-wide nonmembers. More than one-fourth (26%) homemakers interviewed were 60 years old or older. Only nine percent of the total sample were under 30 years of age.

Shadden (11:72) conducted a study of EFNEP homemakers from selected counties in Tennessee. Characteristics were studied which included whether or not they were recipients of Welfare, Food Stamps, and/or USDA Assistance, their place of residence, and the length of time they had been enrolled in EFNEP. Comparison of age showed that the mean age of Welfare recipients was about 37 as compared to nearly 40 for non- Welfare. Food Stamp recipient mean age was about 38 as compared to about 41 for non-recipients. The mean age varied significantly between different lengths of enrollment. The highest mean age was nearly 53 years for homemakers enrolled over 30 months. Homemakers enrolled 12 months had the youngest mean age of nearly 39.

In comparison, Todhunter, House, and Zwagg (16:1) conducted a study of older non-institutionalized individuals in Middle Tennessee. They attempted to determine factors that influenced the eating patterns of elderly persons. The sample of 529 individuals included 35 percent males and 65 percent females, of which the total mean age was 73.6 years. The United States Census for 1980 revealed that in Tennessee, about ten (10) percent of all residents were 55 years of age or older (14:22).

Place of Residence

In Smith's (12:22) study of HDCMs and PHHs, 36 percent of HDCMs resided on farms, 44 percent were rural non-farm and 20 percent were urban. All of the PHHs were urban.

Earlier, Prince (9:17) surveyed homemakers in Weakley County in 1971 regarding characteristics and nutritional practices. Two groups

compared were HDCMs and nonmember homemakers. In the sample of HDCMs, 52 percent lived on a farm, 22 percent were rural nonfarm, and 20 percent were urban. By comparison, 56 percent of the nonmembers were urban, 14 percent were rural nonfarm, and 30 percent were farm residents.

In the sample studied by Davis (1:18), 56 percent of the HDCMs resided on a farm, 32 percent were rural non-farm, and 12 percent were urban. Thirty-two percent of the non-members lived on a farm, 64 percent were rural non-farm, and four percent were urban. All of the housing authority nonmembers were urban.

Employment

According to the study by Smith (12:22), 84 percent of the total sample of homemakers did not work outside the home. In comparing the two audiences, it was found that only 12 percent of HDCMs and 8 percent of PHHs worked full-time. None of the HDCMs were employed part-time as compared to 12 percent of PHHs.

The Prince (9:26) study revealed that 71 percent of the HDCMs did not work outside the home as compared to 56 percent of non-members. Working part-time were 18 percent of HDCMs and 14 percent of non-members, while 11 percent of HDCMs and 30 percent non-members worked full-time.

Comparatively, 64 percent of the total Davis (1:28) sample were unemployed. Eight percent of the HDCMs were employed full-time; 12 percent worked part-time; and 80 percent were unemployed. Thirty-two percent of the county-wide non-members were employed full-time and the

remaining 68 percent were unemployed. Of the housing authority nonmembers, 48 percent worked full-time, 8 percent worked part-time, and 44 percent were unemployed.

Income

Smith (12:35) reported in the study of HDCMs and PHHs, that the median income for both was $185 per month. All PHHs and 24 percent of HDCMs reported total incomes of less than $300 per month. HDCMs' median, $475 was considerably higher than for PHHs, $140.

Earlier, homemakers surveyed by Prince (9:46) reported a median annual income of $5,102. Median income for HDCMs was $4,436 and $5,769 for other homemakers. Income range of the total sample was from 19 percent with $1000-2,999 to 7 percent with $11,000 and over.

In comparison, incomes in the Davis (1:26) study were relatively low. Sixty-four percent of the total sample had an annual family net income of less than $1000. No incomes over $5000 were reported.

Monthly incomes analyzed in the Shadden (11:76-79) EFNEP study were significantly higher for non-Welfare recipients,and non-Food Stamp recipients, than for recipients. The same was the case with those with educational levels beyond 12th grade and with rural residents compared with others. The presence of an adult male in the household also was related to higher monthly income. Income averages ranged from a low of $238 for Welfare recipients to a high of $525 for those with more than 12 grades of schooling.

# II. STUDIES RELATED TO FOOD INTAKE

In the studies reviewed, comparisons were made of characteristics and audiences in their food intake in relation to the Basic Four Food Groups, and, in one study, seven major nutrients. Comparisons were made for the total samples in the studies as well as in each of the four food groups.

## General Studies

Overall Food Recall Analysis in the Shadden (11:68) study showed that recipients of Welfare, Food Stamps and USDA Assistance, and urban residents had significantly higher mean scores.

In the Todhunter, House and Zwagg (16:32) study, dietary ratings were done for seven major nutrients. Ratings were either very good, satisfactory, fair or very low. Protein was found to be very good by one-half of the sample. Two-thirds of the sample had satisfactory or better ratings for calcium and Vitamin C. One-half of the total group had satisfactory or better intakes of iron. For Vitamin A and thiamin, more than half of the sample was below satisfactory. The lowest intake was for riboflavin, where only 37 percent reached satisfactory.

The discussion below deals with findings in each of the four food groups.

## Milk

In the Shadden (11:52) study, improvement scores for milk consumption was highest among recipients of Welfare, Food Stamps and USDA

Assistance. Urban residents and homemakers enrolled 24 months also received high improvement scores.

In comparison, Seiders (10:41) studied characteristics of EFNEP homemakers in relation to responses on the initial and last food recall in selected Tennessee counties in 1972. On the first food recall, there was a significant relationship between age of homemakers and percents with adequate servings from the milk group. Only 15 percent of the homemakers under age 25 had adequate servings of milk products as compared to 44 percent of those over 64, and 25 percent of intermediate age groups. There was no significant relationship with age on the last food recall. Only urban residents made significant improvement on the last food recall. The study (10:62) revealed no marked difference in relation to income.

Comparisons in the Seiders (10:90) study showed that milk consumption was lower for families who were not receiving Welfare but higher for families receiving Food Stamps.

In the earlier study by Davis (1:38), milk consumption was reported for three audiences. Fifty-two percent of county-wide nonmembers usually drank two glasses of milk daily, as was true for 46 percent of HDCMs and 35 percent of housing authority nonmembers.

Meat

In the 1984 study by Shadden (11:52), meat analysis showed higher improvement scores among recipients of Welfare and USDA Assistance. Urban residents and homemakers enrolled 24 months ranked in the high scoring level.

Seider's (10:38) study dealt with comparisons of meat in relation to age, place of residence, income, garden, number of family members, public assistance to families and recorded time in EFNEP. No significant differences were found with these factors in relation to meat consumption.

By comparison, Davis (1:38) found that a high percentage of each group reported eating at least two servings daily from the meat group. Percents ranged from 90 percent for housing authority nonmembers to 94 percent for HDCMs.

Fruits and Vegetables

Improvement scores in the fruit/vegetable group for the EFNEP homemakers in the Shadden (11:41) study were higher for non-Welfare, non-Food Stamp, and USDA Assistance recipients. Urban residents and homemakers enrolled in the program 24 months had higher scores.

Even though Seiders (10:41) found no significant difference in servings of fruits/vegetables in relation to age, younger homemakers had the lowest and highest percents on the first and last recalls, respectively.

Rural residents were found to have more adequate servings than urban or rural nonfarm residents in the Seiders (10:50) study. As expected, there was a very marked relationship with the fruit/vegetable group and those having a garden. Twenty-six percent on the first food recall and 54 percent of families with gardens on the last had adequate servings.

Fruit/vegetable intake analysis studied by Davis (1:38) showed that 76 percent of all adults in the study reported adequate amounts of Vitamin C foods. Eighty-six percent of HDCMs reported adequate intakes as compared to 72 percent of county-wide nonmembers and housing authority nonmembers. Ninety-four percent of HDCMs reported eating at least one serving of green or yellow vegetables.

Bread and Cereal

In the study conducted by Shadden (11:60) of EFNEP homemakers, bread/cereal consumption analysis showed higher scores for USDA Assistance recipients and urban residents. There were no significant differences for Welfare and Food Stamp recipients or length of time enrolled.

Rural residents were again found to have higher consumption of bread/cereal in the Seiders (10:46) study. Only urban homemakers made significant improvements.

There was no significant difference found by Seiders (10:62) in relation to income and food intake except for in the bread/cereal. Of homemakers with an income lower than $3000, there was a significantly lower percent with adequate servings. Families who received Commodity Foods had a higher consumption. Those homemakers living alone had the lowest percent with adequate servings of bread/cereal.

In conclusion, only three studies (1,10,11) were located which related characteristics to food intake in the Basic Four Food groups. Findings from these studies provide a backdrop for the present investigation.

# III. STUDIES RELATED TO NUTRITIONAL PRACTICES

The following review of related literature deals with nutritional practices. Discussion is first made of an overall view of studies done in relation to the total samples. Further discussion is divided into categories related to divisions of the Food Behavior Checklist, which were used in the present study. Those divisions are Food Purchase, Food and Meal Planning, Food Storage and Sanitation, Food Preparation, and Knowledge of Nutrition.

## Studies in General

Smith (12:43-44) considered 16 nutritional practices used by HDCMs and PHHs. The practices were divided into categories of shopping, planning and storage, preparation, and preservation. Fifty-three percent of the total samples used the practices under consideration. Sixty-five percent of the HDCMs and 42 percent of the PHHs used the practices.

In 1975, Stocking (13:23) conducted a comparative nutrition survey of three Sullivan County audiences, Food Stamp recipients, HDCMs, and young homemakers. A smaller percent of Food Stamp recipients (19%) than of either the HDCMs (35%) or young homemakers (26%) were high users of nutritional practices. The older Food Stamp recipients (i.e. 60 years or older) were using fewer recommended nutritional practices than either the middle age group (ages 40-59) or the younger homemakers (ages 20-39).

Food Stamp recipients in the Stocking (13:23) study who lived alone used fewer approved practices than either of the other audiences. The highest use of recommended practices, among Food Stamp recipients, was by those with two to four persons in the family.

HDCMs with large families (five or more persons) were the highest users of recommended practices. Young homemakers were using fewer of the nutritional practices than the HDCMs but more than the Food Stamp recipients.

Stocking (13:54) also studied the influence of individual and group instruction on nutritional practice use. Forty-five percent of the Food Stamp recipients interviewed had received nutritional instruction from an Extension agent. Only 4 percent of those who had not received instruction from an Extension Agent placed in the high user group, compared to 38 percent of homemakers who had received such instruction.

Ninety percent of HDCMs in the Stocking (13:56) study had received nutritional instruction from an Extension agent. Forty percent of this group were at the medium use level; 36 percent were at high use level; and 24 percent were at the low use level.

Only 44 percent of the young homemakers had received nutritional instruction from an Extension agent. Twenty-six percent of those were in the high practice use level compared to 33 percent in the low use category. Of those interviewed who had not received any nutrition instruction from an Extension agent, the fewest practices were used by Food Stamp recipients (10:5), young homemakers were next (10:8), with the highest used by HDCMs (11:3).

According to Shadden's (11:51) study, overall scores on the Food Behavior Checklist showed that higher improvement scores were received by recipients of Welfare and USDA Assistance, urban homemakers, and homemakers enrolled 30 months.

Food Purchase

According to the Smith (12:43-44) study of HDCMs and PHHs, two shopping practices were studied. "Checking food supplies" and "Getting the most for the money" were used by 68 percent of HDCMs and 62 percent of PHHs.

In comparison, Shadden (12:34-35) found that homemakers reflecting higher scores on approved food purchase practices were Welfare recipients, USDA Assistance recipients, and homemakers enrolled in EFNEP 30 months. Homemakers enrolled over 30 months showed the lowest percents improving. Forty-four percent of the rural and 76.5 percent of the urban homemakers showed increases in improvement scores. None of the urban homemakers had a decrease, while the scores of 11.8 percent of rural homemakers decreased.

In the Downen (2:21) statewide nutrition study, use of recommended practices was measured in levels of educational concern, 62 percent used being the "concern" level. The practices were then "cross-walked" into the Tennessee Extension Management System primary subjects of Health, Food Preservation, Nutrition, Food Preparation and Service, and Food Selection and Buying. Audiences compared were HDCM, Food Stamp recipients, Homemakers, and Young Nonmember Homemakers. Results showed that in the Food Selection and Buying subject, all audiences were above

the concern level at 86 percent. Food Stamp recipients did have the lowest average, however.

Food and Meal Planning

In relation to meal planning, the Davis (1:34-35) study of homemakers used the "Basic Four" and Food for Fitness--A Daily Food Guide as bases in recommendations. Sixty-eight percent of HDCMs, 44 percent of county-wide nonmembers said they "always" followed recommended principles in meal planning. Using the Practices "sometimes" were 68 percent of housing authority respondents, compared to 52 percent of county-wide nonmembers and 32 percent of HDCMs. Those who "never" followed recommended practices comprised 24 percent of the housing authority sample and 4 percent of the county-wide nonmembers. All HDCMs followed recommended practices either "always " or "sometimes".

To further assist in food planning, 92 percent of HDCMs grew gardens as compared to 68 percent of county-wide nonmembers who grew gardens.

Later, Prince (9:30) studied meal planning principles of Weakley County homemakers. Twenty-six percent of HDCMs planned meals at least two to five days ahead of time as compared to 33 percent of nonmembers. Fifty-eight percent of HDCMs followed recommended practices in planning meals as compared to 51 percent of nonmembers. One good source of Vitamin C was included daily by 65 percent of nonmembers and 80 percent of club members.

By comparison, improvement scores for food and meal planning were determined by Shadden (11:40) in the study of EFNEP homemakers. Scores were higher for recipients of Welfare, Food Stamps, and USDA Assistance, urban residents and homemakers enrolled 30 months than for others.

Ten planning principles were included in Smith's (12:43- 46) study. Seventy-five percent of the HDCMs and 53 percent PHHs used the recommended procedures. The average percent usage for all ten practices was 64 percent. There were consequential differences on all practices except "selecting a variety of foods when dieting". Percents were the same for selection of protein foods.

Food Storage and Sanitation

According to the Shadden (11:36-39) study of EFNEP homemakers, an increase in food storage and sanitation scores was found for non-Welfare recipients, Food Stamp recipients, and USDA Assistance recipients. Improvement in scores was found for urban residents and those homemakers enrolled in EFNEP 24 months.

Recommended prodecures for food preservation are included as practices under food storage. Three practices considered in the Smith (12:44) study were used by 66 percent of HDCMs and 15 percent PHHs.

By comparison, the Food Preservation subject in Downen's (2:21) study was below the concern level at 58.3 percent. "Canned fruits and tomatoes in a waterbath" and "Canned all low-acid foods in a pressure canner" were at 50 percent and 54 percent, respectively. The HDCMs

were the only audience averaging above the concern level with an average of 63.6 percent.

Food Preparation

One single practice dealing with food preparation was included in the Smith (12:46) and Downen (2:26) studies. Homemakers who used cooking methods other than frying included 84 percent of all homemakers surveyed in the Smith study, consisting of 72 percent and 96 percent of PHHs and HDCMs, respectively. Percent usage for the Downen study total sample was 72 percent.

Food preparation practices in the Davis (1:59) study included use of vegetable oil; cooking protein foods at low temperature; and cooking vegetables only until tender and in a small quantity of water. A larger number of HDCMs used vegetable oil in food preparation than was true for the other two audiences. Eighty percent of HDCMs, 52 percent of county-wide nonmembers, and 9 percent of housing authority nonmembers said they "always" used vegetable oil in food preparation. Eight percent of county-wide nonmembers and 40 percent of housing authority nonmembers said that they "never" used vegetable oil in food preparation.

Other food preparation practices used included 63 percent of the sample who "always" cooked protein foods at low temperatures; 97 percent who cooked vegetables until tender; and 91 percent who "always" bought whole grain bread/cereal products.

Further, in Prince's (9:40) comparison of HDCMs and non-members, 75 percent and 69 percent, respectively, used vegetable oil in food

preparation. Protein foods were cooked at low temperatures by 80 percent members and 62 percent of nonmembers. Vegetables were cooked only until tender by 78 percent of the members and 71 percent of the nonmembers. Seventy-one percent bought enriched bread/cereal products, while 58 percent of the nonmembers followed this practice.

The EFNEP homemakers' scores in Shadden's (11:51) study were higher for urban residents and those enrolled 18 months than for others. Those receiving Welfare and USDA Assistance also showed higher improvement scores.

Nutritional Knowledge

The Shadden (11:27) study was the only one which dealt with the category "Knowledge of Nutrition." Comparisons of improvement scores for this area showed higher ones for Welfare recipients, USDA Assistance recipients, urban residents, and homemakers enrolled 30 months.

# CHAPTER III

## FINDINGS OF THE STUDY OF PERSONAL AND FAMILY CHARACTERISTICS AND FOOD CONSUMPTION

The purpose of this chapter is to compare the personal and family characteristics and food consumption of two Extension audiences, Extension Homemaker Club Members (EHCM) and Expanded Food and Nutrition Program Participants (EFNEPP) in Hawkins County. Two types of statistical analyses are used, Chi-square and the T-test.

Food consumption reflects the number of servings of milk, meat, fruits/vegetables, and bread/cereal consumed by the respondents. The food recall was taken for the 24-hour period immediately prior to the interview.

Data are summarized into six major tables. Each table constitutes a section. Section I compares the personal and family characteristics of the Extension audiences.

Section II compares the number of servings of milk, meat, fruits/vegetables, and bread/cereal conusmed by the two Extension audiences.

Section III compares the two audiences as to milk conusmption in relation to four personal/family characteristics: age, marital status, number in household, and place of residence.

Section IV compares the two audiences as to number of servings of meat consumed in relation to personal/family characteristics.

Section V compares the two audiences as to number of servings of fruits/vegetables consumed in relation to personal/family characteristics.

Section VI compares the two audiences as to number of servings of bread/cereal consumed in relation to personal/family characteristics.

## I. COMPARISON OF HAWKINS COUNTY EHCM AND EFNEPP IN RELATION TO PERSONAL/FAMILY CHARACTERISTICS

A comparison of personal and family characteristics of EHCM and EFNEPP is made in Table I. Chi-square is used to determine relationships.

### Personal Characteristics

Personal characteristics considered in this discussion are age and marital status.

Age. The age of respondents was reported in three categories (Table I): 16 to 35, 36 to 55, and 56 and over. When compared, 6 percent EHCM and 72 percent EFNEPP were in the 16-35 age group. The Chi-square test indicated a significant (.001) relationship between age and audience. The EFNEPP audience tended to be younger than the EFNEPP.

Marital status. The data indicated 83 percent of the homemakers surveyed were married. Seventy-eight percent of EHCM were married as compared to 88 percent EFNEPP. However, the Chi-square test indicated these differences were not significant at the .05 level.

Table I

Comparison of Hawkins County EHCM and EFNEPP in Relation to Personal/Family Characteristics

| Personal/ Family Characteristics | Extension Audiences | | |
|---|---|---|---|
| | Total (N=100) | EHCM (N=50) | EFNEPP (N=50) |
| | | .....Percent..... | |
| **Personal Characteristics** | | | |
| Age | | | |
| 16-35 | 36 | 6 | 72 |
| 36-55 | 30 | 38 | 22 |
| 56+ | 34 | 56 | 6 |
| Total | 100 | 100 | 100 |
| $x^2$=41.958 p=0.001 | | | |
| Marital Status | | | |
| Single | 3 | 6 | 0 |
| Widow | 14 | 16 | 12 |
| Married | 83 | 78 | 88 |
| Total | 100 | 100 | 100 |
| $x^2$=3.587 P=0.166 | | | |
| Nature of Employment | | | |
| Full-time | 6 | 12 | 0 |
| Part-time | 3 | 6 | 0 |
| Not employed | 90 | 82 | 98 |
| No answer | 1 | 0 | 2 |
| Total | 100 | 100 | 100 |
| $x^2$=9.702 P=0.008 | | | |
| **Family Characteristics** | | | |
| Number in Household | | | |
| 1-2 | 38 | 56 | 20 |
| 3-4 | 44 | 40 | 48 |
| 5+ | 18 | 4 | 32 |
| Total | 100 | 100 | 100 |
| Mean | 3.2 | 2.8 | 3.8 |
| $x^2$=19.779 P=0.001 | | | |

Table I. (Continued)

| Personal/ Family Characteristics | Extension Audiences | | |
|---|---|---|---|
| | Total (N-100) | EHCM (N=50) | EFNEPP (N=50) |
| Place of Residence | | | |
| Farm | 69 | 48 | 90 |
| Non-farm | 31 | 52 | 10 |
| Total | 100 | 100 | 100 |
| $x^2$=63.287 P=0.001 | | | |
| Monthly Income | | | |
| Under $300 | 10 | 0 | 20 |
| $300-$620 | 44 | 12 | 76 |
| $620-$920 | 12 | 22 | 2 |
| Over $920 | 22 | 44 | 0 |
| No Response | 12 | 22 | 2 |
| Total | 100 | 100 | 100 |
| $x^2$=63.287 P=0.001 | | | |
| Food Stamps | | | |
| Yes | 32 | 0 | 64 |
| NO | 68 | 100 | 36 |
| Total | 100 | 100 | 100 |
| $x^2$=47.059 p=0.001 | | | |

Nature of employment. The nature of employment was studied as to full-time or part-time or no employment. Data indicated, among the EHCM, 12 percent were employed full-time and 6 percent part-time. Not any of the EFNEPP were employed. This relationship between nature of employment and audience was significant (.008).

Family Characteristics

Number in household. The number of family members per household was studied in three groups: 1-2, 3-4, and 5+, The data indicated 56 percent of the EHCM were in households of 1-2 persons as compared to 20 percent the EFNEPP. A significant (.001) relationship was indicated between number in household and audience. Hawkins County EFNEPP households had more family members than the EFNEPP.

Place of residence. Farm and non-farm residences were compared. Ninety percent of EFNEPP as compared to 48 percent EHCM resided on a farm. The Chi-square test indicated a significant (.001) relationship between place of residence and audience. A significantly higher percentage of the EFNEPP than the EHCM lived on farms.

Monthly income. Data in Table I indicates income ranges from under $300 to over $920. Seventy-six percent EFNEPP were in the $300-$620 category as compared to only 12 percent EHCM. The Chi- square test indicated a significant (.001) relationship between monthly income and audience. The EFNEPP had significantly lower incomes than the EFNEPP.

Food stamps. Data were collected as to whether respondents were recipients of food stamps. Not any of the EHCM received food stamps as compared to to 36 percent of the EFNEPP. Extension audience was significantly related to receiving food stamps. A significantly higher percentage of the EFNEPP than of the EHCM received food stamps.

## II. COMPARISON OF EHCM AND EFNEPP AND RECOMMENDED FOOD CONSUMPTION

A comparison of EHCM and EFNEPP audiences as to food consumption from each of the four food groups: (i.e. milk, meat, fruits/vegetables, and bread/cereal) is made in Table II. The Chi-square test was used to determine strength of relationships.

### Four Food Groups

Milk. Comparisons were made as to whether the Extension audiences had consumed above, below or at the recommended level of two servings of milk daily. Data in Table II indicated 58 percent of the EFNEPP as compared to 2 percent of the EHCM consumed the recommended two servings of milk. The Chi-square test indicated a significant (.001) relationship between milk consumption and audience. A significantly higher proportion of the EFNEPP than of the EHCM consumed the recommended servings of milk.

Meat. Two servings of meat are recommended daily. Fifty-six percent of the EFNEPP as compared to 34 percent of the EHCM consumed the recommended two servings daily. The Chi-square test indicated a

Table II

Comparison of Hawkins County EHCM and EFNEPP and Recommended Food Consumption

| Food Groups | Total (N=100) | Extension Audiences: EHCM (N=50) | Extension Audiences: EFNEPP (N=50) |
|---|---|---|---|
| | .....Percents..... | | |
| Milk | | | |
| (2 servings recommended) | | | |
| Below | 39 | 40 | 38 |
| Recommended | 42 | 26 | 58 |
| Above | 19 | 34 | 4 |
| Total | 100 | 100 | 100 |
| Mean | 1.8 | 1.9 | 1.7 |
| $x^2$=24.996 P=0.001 | | | |
| Meat | | | |
| (2 servings recommended) | | | |
| Below | 23 | 30 | 16 |
| Recommended | 45 | 34 | 56 |
| Above | 32 | 36 | 28 |
| Total | 100 | 100 | 100 |
| Mean | 2.2 | 2.3 | 2.1 |
| $x^2$=12.938 p=0.024 | | | |
| Fruit/Vegetables | | | |
| (4 servings recommended) | | | |
| Below | 46 | 46 | 46 |
| Recommended | 23 | 24 | 22 |
| Above | 31 | 30 | 32 |
| Total | 100 | 100 | 100 |
| Mean | 3.8 | 3.7 | 3.8 |
| $x^2$=8.944 P=0.347 | | | |
| Bread/Cereal | | | |
| (4 servings recommended) | | | |
| Below | 23 | 28 | 18 |
| Recommended | 33 | 30 | 36 |
| Above | 44 | 42 | 46 |
| Total | 100 | 100 | 100 |
| Mean | 4.5 | 4.3 | 4.7 |
| $x^2$=9.184 P=0.420 | | | |

Table II. (Continued)

| Food Groups | Total (N=100) | Extension Audiences: EHCM (N=50) | Extension Audiences: EFNEPP (N=50) |
|---|---|---|---|
| Totals daily recommended allowances | | | |
| Yes | 27 | 20 | 34 |
| No | 73 | 80 | 66 |
| Total | 100 | 100 | 100 |
| $x^2$=2.486 P=0.115 | | | |

significant (.024) relationship between meat consumption and audience. A significantly higher percent of the EFNEPP than of the EHCM consumed the recommended servings of meat.

Fruit/vegetable. Four servings per day of fruits/vegetables are recommended. When compared, 24 percent of the EHCM and 22 percent of the EFNEPP consumed the recommended level. Extension audience was not significantly related to the homemakers' consumption of fruits and vegetables.

Bread/cereal. Four servings per day of bread/cereals are recommended. Thirty-six percent EFNEPP as compared to 30 percent EHCM consumed bread/cereals at the recommended level. Extension audience was not significantly related to the homemaker's consumption of breads and cereals.

Recommended servings of all food groups. The two Extension audiences were compared in relation to their consumption, in recommended levels, of all four food groups daily. Twenty percent of the EHCM as compared to 34 percent EFNEPP consumed the recommended level of servings from each of the four food groups. Extension audience was not significantly related to the homemakers consumption of the recommended number of servings from each of the four food groups.

## III. COMPARISON OF EXTENSION AUDIENCES AS TO SERVINGS OF MILK IN RELATION TO PERSONAL/FAMILY CHARACTERISTICS

The T-test was used to determine relationships between mean number of servings of milk consumed by the two Extension audiences by personal characteristics (age and marital status) and family characteristics (number in household and place of residence) in Table III. Servings of milk are reported in mean number of servings. Two servings are recommended daily.

### Personal Characteristics

Age. Comparisons of milk servings were made in three age groups, 16 to 35, 36 to 55, and 56 and over. In the 16 to 35 age group, the EHCM had consumed 2.33 servings as compared to 1.70 for the EFNEPP. The EHCM had consumed 1.74 and EFNEPP 1.6 in the 36 to 55 age group and 2.0 and 1.5, respectively in the 56+ group. The T- test indicated that age was not significantly related to the number of servings of milk consumed daily.

Marital status. In studying the data concerning marital status, those EHCM homemakers who were widows consumed 2.13 servings of milk as compared to 1.71 by the EFNEPP. The married EHCM had consumed 1.90 servings as compared to 1.66 by the EFNEPP. The T-test indicated in neither group was there a significant relationship between marital status and milk consumption.

Table III

Comparison of Extension Audiences as to Number of Servings of Milk in Relation to Personal/Family Characteristics

| Personal/ Family Characteristics | Extension Audiences: EHCM No. of Respondents | EHCM Mean no. Servings Milk | EFNEPP No.of Respondents | EFNEPP Mean no. Servings Milk | T Test | P |
|---|---|---|---|---|---|---|
| **Personal** | | | | | | |
| Age | | | | | | |
| 16-35 | 3 | 2.33 | 33 | 1.70 | -0.94 | 0.44 |
| 36-55 | 19 | 1.74 | 11 | 1.64 | -0.38 | 0.70 |
| 56+ | 28 | 2.00 | 6 | 1.50 | -1.47 | 0.16 |
| Marital Status | | | | | | |
| Widow | 8 | 2.13 | 6 | 1.71 | -0.82 | 0.43 |
| Married | 39 | 1.90 | 44 | 1.66 | -1.18 | 0.24 |
| **Family** | | | | | | |
| Number in Household | | | | | | |
| 1-2 | 28 | 1.96 | 10 | 1.80 | -0.51 | 0.61 |
| 3-4 | 20 | 1.95 | 24 | 1.54 | -1.66 | 0.11 |
| 5+ | 2 | 1.00 | 16 | 1.75 | 5.20 | 0.0001 |
| Place of Residence | | | | | | |
| Farm | 24 | 1.96 | 45 | 1.71 | -1.09 | 0.29 |
| Non-farm | 26 | 1.88 | 5 | 1.20 | -2.08 | 0.05 |

Family Characteristics

Number in household. In the household groups of 1-2 or 3-4 residents, the mean number of milk servings consumed ranged from 1.54 to 1.96, all below the recommended servings. These differences were not found to be significant according to the T-test. However, when five or more resided in a household, the number of servings of milk ranged from 1.0 to 1.75 and were found to be significant (.0001). The EFNEPP with five or more living in the household consumed significantly more servings of milk than did the EHCM having five or more residents.

Place of residence. For those respondents living on a farm, milk consumption ranged from 1.71 for EFNEPP to 1.96 servings for EHCM. For those not living on a farm, servings were 1.20 and 1.88, respectively. The relationship between non-farm residents and milk consumption by Extension audiences significant at the .05 level. The EHCM tended to have a higher level of milk consumption than did the EFNEP homemakers.

## IV. COMPARISON OF EXTENSION AUDIENCES AS TO SERVINGS OF MEAT IN RELATION TO PERSONAL/FAMILY CHARACTERISTICS

The relationship between meat consumption by Extension audiences and personal/family characteristics was determined using the T-test. Variables included personal characteristics (age and marital status) and family characteristics (number in household and place of

residence). In Table IV servings of meat are reported as mean number of servings consumed by each Extension audience. Two servings are recommended daily.

## Personal Characteristics

Age. In all three age groups, 16-35, 36-55, and 56+, number of servings of meat consumed were found to be close (i.e. ranging from 1.83 to 2.63). The T-test indicated that age was not significantly related to meat consumption. However, in the middle group, 36-55, meat consumption was slightly higher (2.18 for EFNEPP and 2.63 for EHCM) but not significant.

Marital status. Meat consumption by EHCM and EFNEPP who were widowed and married was similar with 2.0 to 2.63 and 2.16 to 2.36, respectively. Marital status was not significantly related to the number of meat servings consumed daily by EHCM and EFNEPP.

## Family Characteristics

Number in household. Meat consumption for all three size of household categories, 1-2, 3-4, and 5+, was above the recommended two servings. When considering servings for audiences, EHCM consumed from 2.11 to 2.60 servings, while EFNEPP consumed from 2.04 to 2.31 meat servings daily. The T-test did not indicate a significant relationship between audiences for number in household and meat consumption by Extension audiences.

Table IV

Comparison of Extension Audiences as to Number of Servings of Meat in Relation to Personal/Family Characteristics

| Personal/ Family Characteristics | Extension Audiences: EHCM No. of Respondents | EHCM Mean no. Servings Meat | EFNEPP No.of Respondents | EFNEPP Mean no. Servings Meat | T Test | P |
|---|---|---|---|---|---|---|
| **Personal** | | | | | | |
| Age | | | | | | |
| 16-35 | 3 | 2.33 | 33 | 2.18 | -0.17 | 0.88 |
| 36-55 | 19 | 2.63 | 11 | 2.18 | -1.18 | 0.25 |
| 56+ | 28 | 2.11 | 6 | 1 83 | 0.97 | 0.34 |
| Marital Status | | | | | | |
| Widow | 8 | 2.63 | 6 | 2.00 | -0.96 | 0.36 |
| Married | 39 | 1.90 | 44 | 1.66 | -1.18 | 0.24 |
| **Family** | | | | | | |
| Number in Household | | | | | | |
| 1-2 | 28 | 2.11 | 10 | 2.10 | 0.02 | 0.98 |
| 3-4 | 20 | 2.60 | 24 | 2.04 | -1.75 | 0.09 |
| 5+ | 2 | 2.50 | 16 | 2.31 | 0.35 | 0.78 |
| Place of Residence | | | | | | |
| Farm | 24 | 2.04 | 45 | 2.16 | 0.46 | 0.65 |
| Non-farm | 26 | 2.58 | 5 | 2.00 | -2.07 | 0.05 |

Place of residence. When meat consumption by place of residence was studied, EFNEPP farm residents consumed 2.16 and EHCM consumed 2.04 servings of meat. The non-farm residents' meat consumption was 2.0 to 2.58 servings, by the EHCM and EFNEPP, respectively. The T-test did reflect a significant (.05) relationship for non-farm residence and meat consumption by Extension audiences. EHCM living in non-farm areas consumed more servings of meat than did the EFNEPP.

## V. COMPARISON OF EXTENSION AUDIENCES AS TO NUMBER OF SERVINGS OF FRUITS/VEGETABLES IN RELATION TO PERSONAL/ FAMILY CHARACTERISTICS

Data were compared to determine the relationship between fruit/vegetable consumption by Extension audiences and personal/family characteristics. Personal characteristics included age and marital status; family characteristics were number in household and place of residence. Four daily servings of fruits/vegetables are recommended. Data are reported in Table V as mean number of servings consumed.

### Personal Characteristics

Age. Data reflected that all respondents had mean servings below the recommended fruit/vegetable consumption except the EFNEPP in the 56 and older category. The T-test indicated that in neither group was there a significant relationship between age and fruit/vegetable consumption.

Table V

Comparison of Extension Audiences as to Number of Servings of Fruits/Vegetables in Relation to Personal/Family Characteristics

| Personal/ Family Characteristics | Extension Audiences: EHCM No. of Respondents | EHCM Mean no. Servings Fruits/ Vegetables | EFNEPP No.of Respondents | EFNEPP Mean no. Servings Fruits/ Vegetables | T Test | P |
|---|---|---|---|---|---|---|
| **Personal** | | | | | | |
| Age | | | | | | |
| 16-35 | 3 | 3.33 | 33 | 3.76 | -0.60 | 0.59 |
| 36-55 | 19 | 3.68 | 11 | 3.82 | -0.24 | 0.81 |
| 56+ | 28 | 3.79 | 6 | 4.00 | -0.18 | 0.87 |
| Marital Status | | | | | | |
| Widow | 8 | 3.88 | 6 | 3.17 | -0.69 | 0.50 |
| Married | 39 | 3.64 | 44 | 3.89 | -0.67 | 0.51 |
| **Family** | | | | | | |
| Number in Household | | | | | | |
| 1-2 | 28 | 4.11 | 10 | 3.90 | -0.34 | 0.74 |
| 3-4 | 20 | 3.20 | 24 | 3.50 | -0.65 | 0.52 |
| 5+ | 2 | 3.50 | 16 | 4.19 | 0.44 | 0.73 |
| Place of Residence | | | | | | |
| Farm | 24 | 3.50 | 45 | 4.02 | -1.10 | 0.28 |
| Non-farm | 26 | 3.92 | 5 | 1.80 | -4.27 | 0.0001 |

Marital status. In neither group, widowed or married, had the homemakers consumed the recommended number of servings. The T-test reflected no significance between marital status of the two Extension audiences and fruit/vegetable consumption.

Family Characteristics

Number in household. When comparing fruit/vegetable consumption and number in household, in only two areas did homemakers reach the recommendation. The EHCM in 1-2 member households and the EFNEPP in 5+ households had 4.11 and 4.19 servings, respectively. The T-test reflected no significance between number in household and fruit/vegetable consumption by the Extension audiences.

Place of residence. In comparing EHCM and EFNEPP as to fruit/vegetable consumption by place of residence, EFNEPP farm homemakers were the only ones who consumed the recommended level. The T-test indicated a significant (.001) relationship between non-farm residents and the consumption of fruits/vegetables by Extension audiences. The EHCM living in non-farm areas consumed more servings of fruits and vegetables than did the EFNEPP.

## VI. COMPARISON OF EXTENSION AUDIENCES AS TO NUMBER OF SERVINGS OF BREAD/CEREAL IN RELATION TO PERSONAL/FAMILY CHARACTERISTICS

In Table VI, data were compared to determine relationships between personal/family characteristics and bread/cereal consumption of

Table VI

Comparison of Extension Audiences as to Number of Servings of Bread/Cereal in Relation to Personal/Family Characteristics

| Personal Family Characteristics | Extension Audiences: EHCM No. of Respondents | EHCM Mean no. Servings Bread/Cereal | EFNEPP No. of Respondents | EFNEPP Mean no. Servings Bread/Cereal | T Test | P |
|---|---|---|---|---|---|---|
| **Personal** | | | | | | |
| Age | | | | | | |
| 16-35 | 3 | 4.67 | 33 | 4.73 | -0.14 | 0.89 |
| 36-55 | 19 | 4.53 | 11 | 4.64 | -0.19 | 0.85 |
| 56+ | 28 | 4.18 | 6 | 4.33 | -0.21 | 0.84 |
| Marital Status | | | | | | |
| Widow | 8 | 4.13 | 6 | 4.17 | -0.06 | 0.95 |
| Married | 39 | 4.38 | 44 | 4.73 | -0.94 | 0.34 |
| **Family** | | | | | | |
| Number in Household | | | | | | |
| 1-2 | 28 | 3.96 | 10 | 4.60 | -1.27 | 0.22 |
| 3-4 | 20 | 4.80 | 24 | 4.75 | -0.09 | 0.93 |
| 5+ | 2 | 5.00 | 16 | 4.56 | -1.52 | 0.15 |
| Place of Residence | | | | | | |
| Farm | 24 | 4.12 | 45 | 4.82 | -1.71 | 0.10 |
| Non-farm | 26 | 4.54 | 5 | 3.20 | -1.65 | 0.02 |

Extension audiences. Servings are reported as mean number of servings. Four servings are recommended daily.

## Personal Characteristics

Age. Among both Extension audiences and all three age categories, bread/cereal consumption was above the recommended level. Servings ranged from 4.18 to 4.73. The T-test reflected no significance between age and bread/cereal consumption by Extension audiences. Homemakers (in the age group 16 to 35) in each audience tended to have a lightly higher consumption than the other two age categories. Consumption of breads and cereals among EHCM and EFNEPP did not differ significantly as to age of homemakers.

Marital status. Both widowed and married homemakers had more than the recommended servings of bread/cereal. The T-test reflected no significance between marital status and bread/cereal consumption by Extension audiences.

## Family Characteristics

Number in household. EFNEPP in households of 1-2 persons were the only homemakers who had not consumed an adequate number of servings of bread/cereals. Servings ranged from 4.60 to 5.0 in the other households of 3 to 4 and 5+. The T-test relected no significance between number in household and bread/cereal consumption of Extension audiences.

Place of residence. Of both farm and non-farm residents, EFNEPP non-farm residents were the only homemakers not consuming at least four servings of bread/cereal.level. The T-test indicated a significant (.02) relationship between non-farm residence and bread/cereal consumption. The nonfarm EHCM consumed significantly more servings of bread/cereal than did the EFNEPP living in nonfarm areas.

## VII. CHAPTER SUMMARY OF FINDINGS

Major findings from Chapter III are summarized for personal/family characteristics, food consumption and relationships between these two variables.

### Personal/Family Characteristics

The EFNEP homemakers tended to be younger and most were not employed. There were more persons in the EFNEPP households, more living on farms, income was less, and more received food stamps.

### Comparison of Audience and Adequacy of Food Consumption

Milk. A significantly higher proportion of the EFNEPP than of the EHCM consumed the recommended two servings of milk daily. In household groups of five or more, the EFNEPP consumed significantly more milk than did the EHCM. The consumption of milk for non-farm residence was significant for the Extension audiences.

Meat. A significantly higher percent of the EFNEPP than of the EHCM consumed the recommended two servings of meat daily. The consump-

tion of meat by the two audiences had a significant relationship for those not living on a farm. EHCM living in non-farm areas consumed more servings of meat than did the EFNEPP.

Fruits/Vegetables. Extension audience was not significantly related to the homemakers' consumption of fruits/vegetables. The EHCM living in non-farm areas consumed significant more servings of fruits and vegetables than did the EFNEPP.

Bread/Cereal. Extension audience was not significantly related to the homemakers' consumption of bread/cereal. The non-farm EHCM consumed significantly more servings of bread/cereal than did the EFNEPP living in non-farm areas.

# CHAPTER IV

## FINDINGS REGARDING PERSONAL/FAMILY CHARACTERISTICS OF EXTENSION AUDIENCES AND FOOD AND NUTRITION PRACTICES USED

The purpose of this chapter is to compare the personal/family characteristics and Food and Nutrition Practices of two Extension Audiences, Extension Homemaker Club Members (EHCM) and Expanded Food and Nutrition Program Participants (EFNEPP) in Hawkins County. Two types of statistical analyses are used to determine strengths and relationships, Chi-square and the T-test.

The Food and Nutrition Practices are 35 selected food knowledges and behavior practices used to indicate progress of EFNEPP. (Thirty practices were included in the present study.) The same checklist was used with EHCM for this study.

Data are summarized into seven major tables. Each table constitutes a section. Section I compares the scores of the homemakers on the Food Behavior Checklist.

Section II compares mean scores on the Food Behavior Checklist and personal/family characteristics: age, marital status, number in household, and place of residence.

Section III compares the mean number of "yes" answers for each Knowledge of Nutrition statement in relation to personal/family characteristics. There are five possible "yes" answers.

Section IV compares the mean number of "yes" answers for each Food Purchase Practice in relation to personal/family characteristics. There are seven possible "yes" answers in this section.

Section V compares the mean number of "yes" answers for each Food and Meal Planning Practices and personal/family characteristics. There are nine possible "yes" answers.

Section VI compares the mean number of "yes" answers for each Food Preparation Practice in relation to personal/family characteristics. There are eight possible "yes" answers.

Section VII compares the mean number of "yes" answers for the total Food Behavior Checklist and personal/family characteristics. There are 30 possible "yes" answers.

## I. RELATIONSHIP BETWEEN EXTENSION AUDIENCES AND KNOWLEDGE ABOUT FOODS AND NUTRITION AND THEIR USE OF SELECTED FOOD PRACTICES

Data in Table VII compares the use of knowledge indicators and food practices on the Food Behavior Practices and Extension audiences.

### Knowledge of Nutrition

There are five indicators of knowledge considered in this discussion.

Named recommended servings each food group. Forty percent of the EFNEPP could name the daily recommended number of servings for each of the four food groups, as compared to 38 percent of the EHCM. The Chi-square test indicated a significant relationship (.007) between the knowledge about the number of servings recommended and audience. A

Table VII

Comparisons of Hawkins County EHCM and EFNEPP According to Percentage Using Each Recommended Food and Nutrition Practices

| Knowledge about and use of Food and Nutrition Practices | Total (N=100) | EHCM (N=50) | EFNEPP (N=50) | $x^2$ | P |
|---|---|---|---|---|---|
| | .....Percents..... | | | | |
| Knowledge of Nutrition | | | | | |
| Named recommended servings each food group* | 55 | 38 | 64 | 7.38 | .007 |
| Named 2 foods each group | 93 | 86 | 100 | 7.52 | .006 |
| Described recommended serving size | 37 | 34 | 40 | 0.39 | .53 |
| Named one good source each Vit. A and C, calcium and iron | 68 | 54 | 82 | 9.00 | .003 |
| Named one example high/low calorie food each group | 57 | 76 | 38 | 12.65 | .001 |
| Food Purchase | | | | | |
| Planned before food shopping | 81 | 94 | 68 | 5.49 | .02 |
| Stretched food dollar | 80 | 92 | 68 | 3.21 | .073 |
| Knew how to obtain food stamps | 51 | 2 | 100 | | |
| Budgeted food money and/or food stamps | 65 | 98 | 32 | 41.37 | .001 |
| Bought needed food amounts for the best buy | 37 | 50 | 24 | 4.35 | .031 |
| Used cheaper sources food | 93 | 92 | 94 | 0.15 | .70 |
| Grew family`s vegetables | 92 | 90 | 94 | 0.54 | .46 |
| Food Storage and Sanitation | | | | | |
| Used recommended food preservation methods | 75 | 88 | 62 | 12.53 | .001 |
| Food and Meal Planning | | | | | |
| Scheduled meals around family activities | 49 | 84 | 14 | 33.01 | .001 |
| Provided recommended food amounts for family | 30 | 48 | 12 | 12.86 | .001 |
| Served a variety of foods | 57 | 90 | 24 | 35.49 | .001 |
| Served food sources of iron | 23 | 30 | 16 | 1.76 | .18 |

Table VII. (Continued)

| Knowledge about and use of Food and Nutrition Practices | Total (N=100) | EHCM (N-50) | EFNEPP (N=50) | $x^2$ | P |
|---|---|---|---|---|---|
| Provided nutritious snacks | 60 | 88 | 32 | 24.86 | .001 |
| Served whole/grain bread/cereal | 50 | 78 | 22 | 23.83 | .001 |
| Served Vit. A and C foods | 60 | 68 | 52 | 1.06 | .30 |
| Watched intake of over/underweight family members | 37 | 64 | 10 | 26.01 | .001 |
| Provided breakfast | 78 | 86 | 70 | 1.10 | .30 |
| Food Preparation | | | | | |
| Conserved nutrient value | 63 | 92 | 34 | 28.07 | .001 |
| Could follow recipe | 100 | 100 | 100 | 1.01 | .32 |
| Served nutritional food | 68 | 98 | 38 | 31.35 | .001 |
| Avoided food waste | 64 | 100 | 28 | 46.82 | .001 |
| Conserved fuel energy | 58 | 98 | 18 | 59.56 | .001 |
| Practiced 3 methods serving/cooking fruits/vegetables | 63 | 90 | 36 | 24.52 | .001 |
| Practiced 3 methods cooking meat | 59 | 86 | 32 | 22.71 | .001 |
| Practiced 3 methods serving/preparing dairy products | 53 | 70 | 36 | 7.47 | .0006 |
| Scores | | | | | |
| 19-53 | 33 | 0 | 64 | | |
| 55-97 | 68 | 100 | 36 | | |
| Mean | 65 | 78 | 52 | | |

$x^2$=47.06 p=.001

*Practice descriptions have been shortened. Copy of actual Checklist in Appendix.

significantly higher percentage of the EFNEPP than of the EHCM knew the recommended number of servings of each food group.

Named two foods each group. When compared, 100 percent of the EFNEPP were able to name two foods in each food group as compared to 86 percent EHCM. The Chi-square test indicated a significant (.006) relationship between audience and knowledge of foods in each food group.

Described recommended serving size in each food group. Forty percent of the EFNEPP and 34 percent of the EHCM could describe the recommended serving size of foods for each group. The data indicated no significance (.53) between audience and knowledge of recommended serving size.

Named one good source each Vitamin A and C, calcium, and iron. When compared, 82 percent of the EFNEPP and 54 percent of the EHCM could name one source of Vitamin A and C, calcium, and iron. The Chi-square test indicated that there was a significant (.003) relationship between audience and knowledge of good sources of nutrients. More EFNEPP than EHCM named one source of Vitamin A and C, calcium, and iron.

Named one example of high/low calorie food in each group. Seventy-six percent of the EHCM and 38 percent of the EFNEPP named one example of a high and low calorie food group. The Chi-square test indicated a significant (.001) relationship between audience and

knowledge of high and low calorie foods. More EHCM than EHCM named high/low calorie foods.

Food Purchase

Planned before food shopping. Ninety-four percent of the EHCM as compared to 68 percent of the EFNEPP planned before food shopping in at least two of the following ways: make a shopping list; write a menu; check food advertisements; check food supplies in the house. The Chi-square test indicated a significant (.02) relationship between audience and planning before food shopping. More EHCM than EFNEPP planned before food shopping.

Stretched food dollar. Ninety-two percent of the EHCM and 68 percent of the EFNEPP stretched their food dollar using at least two of the following: compare food prices; use nonfat dry milk; use store brands or plain-label products; buy day-old bread; buy specials; uses free or reduced price food. No significant relationship was found between audience and use of methods to stretch the food dollar.

Knew how to obtain food stamps. One hundred percent of the EFNEPP audience knew how to obtain food stamps as compared to two percent of the EHCM. No statistical analysis could be computed for this food purchase practice.

Budgeted food money and/or food stamps. Ninety-eight percent of the EHCM as compared to 32 percent of the EFNEPP budgeted their food money and/or food stamps so the family had enough food throughout the

pay period. A significant (.001) relationship was indicated between audience and managing the food money. More EHCM than EFNEPP budgeted their money sufficiently.

Bought needed food amounts for the best buy. When compared, 50 percent of the EHCM and 24 percent of the EFNEPP bought food in amounts to meet needs and to get the best buy in terms of unit price and cost per serving. The Chi-square test indicated a significant (.03) relationship between audience and buying food quantities for the best buy. More EHCM than EFNEPP bought food in amounts needed to get the the best buy.

Used cheaper sources food. Ninety-two percent of the EHCM and 94 percent of the EFNEPP used one or more free or cheaper sources of food such as home grown food, wild game, fresh fish, edible plants and berries or exchange work for food. No significant relationship was found between audience and use of cheaper sources of food.

Grew family's vegetables. When compared, 90 percent of the EHCM and 94 percent of the EFNEPP grew vegetables for family use. No significant relationship was found between audience and growing family vegetables.

## Food Storage and Sanitation

Used recommended food preservation methods. Eighty-eight percent of the EHCM compared to 62 percent of the EFNEPP used recommended food preservation methods for canning, freezing or drying. The Chi-square test indicated a significant (.001) relationship between audience and food preservation methods. More EHCM than EFNEPP used recommended food preservation practices.

## Food and Meal Planning

Scheduled meals around family activities. Eighty-four percent of the EHCM and 14 percent of the EFNEPP scheduled meals around activities of family members. The Chi-square test indicated a significant (.001) relationship between audience and scheduling meals. More of the EHCM than EFNEPP scheduled meals according to the family's activities.

Provided recommended food amounts for family. Forty-eight percent of the EHCM as compared to 12 percent of the EFNEPP provided family members with adequate servings and amounts as recommended by the food guide. A significant (.001) relationship was indicated between audience and providing recommended servings of food. A significantly higher proportion of the EHCM than of the EFNEPP provided recommended amounts of food for their families.

Served a variety of foods. When compared, 90 percent of the EHCM and 24 percent of the EFNEPP served a variety of foods from each food group daily. A significant (.001) relationship was indicated by the Chi-square test. More EHCM than EFNEPP served a variety of foods.

Served sources of iron. Small percentages of both audiences served foods each day which were good sources of iron (i.e. 30 percent EHCM and 16 percent EFNEPP). No significant relationship was indicated.

Provided nutritious snacks. Eighty-eight percent of the EHCM as compared to 32 percent of the EFNEPP provided nutritious snacks when needed. The Chi-square test indicated a significant (.001) relationship between audience and providing nutritious snacks. More of the EHCM than of the EFNEPP provided nutritious snacks.

Served whole grain bread/cereal. Seventy-eight percent of the EHCM and 22 percent of the EFNEPP served whole grain bread/cereal daily. The Chi-square test indicated a significant (.001) relationship between audience and use of whole grain bread/cereal daily. More of the EHCM than EFNEPP served whole grain bread/cereal daily.

Served Vitamin A and C foods. Sixty-eight percent of the EHCM and 52 percent of the EFNEPP served Vitamin A and C foods to meet needs. No significance was indicated.

Watches food intake of overweight and underweight family members. Sixty-four percent of the EHCM as compared to ten percent of the EFNEPP watched the food intake of overweight and underweight family members. The Chi-square test indicated a significant (.001) relationship between audience and awareness of food intake related to body weight. More of the EHCM than the EFNEPP watched family member's food intake.

Provided breakfast. A large percentage of both EHCM and EFNEPP, 86 percent and 70 percent, respectively, planned ways to provide breakfast to the family. The Chi-square test indicated no significant relationship.

## Food Preparation

Conserved nutrient value. Ninety-two percent of the EHCM as compared to 34 percent of the EFNEPP conserved nutrient value of foods. In order to follow this practice, homemakers should answer "yes" to three of the following: used small amount of liquid for fruit/vegetable cookery; used appropriate cooking liquid for future uses; avoided rinsing rice and noodle products before and after cooking. The Chi-square test indicated a significant (.001) relationship between audience and preparing food to conserve nutrient value. A higher proportion of the EHCM than the EFNEPP were conserving nutrient value of foods prepared.

Could follow recipe. One hundred percent of both EHCM and EFNEPP audiences could follow a recipe. This included measuring and mixing

according to directions and obtaining an acceptable finished product. No significant relationship existed between audience and ability to follow recipe.

Served nutritional food. Ninety-eight percent of the EHCM made an effort to serve nutritional food that the family enjoyed as compared to 38 percent of the EFNEPP. The Chi-square test indicated a significant (.001) relationship between audience and the effort to serve nutritional food. A significantly higher proportion of the EHCM than of the EFNEPP made and effort to serve nutritional food.

Avoided food waste. One hundred percent of the EHCM prepared food to use edible parts and avoid waste as compared to 28 percent of the EFNEPP. The Chi-square test indicated a significant (.001) relationship between audience and preparing to avoid waste. A significantly higher proportion of the EHCM than of the EFNEPP avoided food waste.

Conserved fuel energy. When compared, 98 percent of the EHCM and 18 percent of the EFNEPP conserved fuel energy. Ways to conserve included baking several things at once, did not let water run needlessly; and used range top efficiently. A significant (.001) relationship was indicated between audience and conserving fuel energy in food preparation. Almost all EHCM used conservation measures, significantly more than of the EFNEPP.

Practiced three methods serving/cooking fruits/vegetables. Ninety percent of the EHCM as compared to 36 percent of the EFNEPP practiced

three methods serving/cooking fruits/vegetables, including a low calorie method. The Chi-square test indicated a significant (.001) relationship between audience and methods of preparing fruits/vegetables. A significantly higher percentage of EHCM than of the EFNEPP made an effort to practice a variety of methods for preparing fruits/vegetables.

Practiced three methods cooking meat. When compared, 86 percent of the EHCM and 32 percent of the EFNEPP practiced at least three methods of cooking meat or meat substitutes, including a low calorie method. The Chi-square test indicated a significant (.001) relationship between audience and the use of a variety of methods for preparing meat. A significantly higher number of EHCM than EFNEPP practiced at least three cooking methods for preparing meat.

Practiced three methods serving/preparing dairy products. Seventy percent of the EHCM and 36 percent of the EFNEPP practiced at least three methods of serving/preparing dairy products, including a low calorie method. The Chi-square test indicated a significant (.006) relationship between audience and the number of methods used for preparing dairy products. A higher percentage of EHCM practiced three methods of serving/preparating of dairy products than the EFNEPP.

## II. MEAN SCORES ON FOOD BEHAVIOR CHECKLIST IN RELATION TO PERSONAL/FAMILY CHARACTERISTICS

Data in Table VIII indicates the mean scores of Extension audiences in relation to personal/family characteristics.

### Personal Characteristics

Age. Mean scores for EHCM in all three age categories ranged from 78.6 to 80.3. The mean scores for EFNEPP ranged from 49.7 to 57.0. The T-test indicated a significant relationship between audiences for age and mean scores in all three categories. The EFNEPP homemakers tended to score lower than did the EHCM in relation to age.

Marital status. EHCM who were widows had a mean score of 73.2 as compared to 57.1 for the EFNEPP. When compared, the EHCM who were married had a mean score of 80.1 and the EFNEPP 51.7. The T-test indicated a significant (.001) relationship between the audiences for the married status and mean scores. For both widowed and married homemakers, EHCM had higher mean scores than the EFNEPP.

### Family Characteristics

Number in household. When comparing mean scores for the number in the household, EHCM ranged from 70.5 to 81.5 and EFNEPP from 49.5 to 55.5. In all three groups, 1-2, 3-4, and 5+ household members, the T-test indicated a significant (.01) relationship between mean scores of

Table VIII

Mean Scores of Extension Audiences on Food Behavior Checklist in Relation to Personal/Family Characteristics

| Personal/ Family Characteristics | Extension Audiences: EHCM No. of Respondents | EHCM Mean Scores | EFNEPP No. of Respondents | EFNEPP Mean Scores | T Test | P |
|---|---|---|---|---|---|---|
| **Personal** | | | | | | |
| Age | | | | | | |
| 16-35 | 3 | 80.3 | 33 | 51.3 | -6.06 | 0.0001 |
| 36-55 | 19 | 78.6 | 11 | 57.0 | -3.11 | 0.008 |
| 56+ | 28 | 78.7 | 6 | 49.7 | -4.30 | 0.005 |
| Marital Status | | | | | | |
| Widow | 8 | 73.2 | 6 | 57.1 | -1.70 | 0.12 |
| Married | 39 | 80.1 | 44 | 51.7 | -7.67 | 0.0001 |
| **Family** | | | | | | |
| Number in Household | | | | | | |
| 1-2 | 28 | 77.3 | 10 | 54.2 | -3.25 | 0.01 |
| 3-4 | 20 | 81.5 | 24 | 49.5 | -6.17 | 0.01 |
| 5+ | 2 | 70.5 | 16 | 55.5 | -2.97 | 0.01 |
| Place of Residence | | | | | | |
| Farm | 24 | 78.9 | 45 | 53.4 | -6.23 | 0.0001 |
| Non-farm | 26 | 78.7 | 5 | 43.0 | -10.60 | 0.0001 |

both audiences and the number living in the household. The EHCM scores were higher for all three groups than the EFNEPP.

Place of residence. When comparing mean scores for farm or non-farm residents, there was very little difference in the EHCM audience, i.e. 78.9 and 78.7, respectively. The mean scores for the EFNEPP were 53.4 for farm and 43.0 for non-farm residents. The T-test indicated a significant (.001) relationship between audiences for both farm and non-farm residents and mean scores. EHCM had higher scores for both areas than the EFNEPP.

## III. COMPARISON OF EXTENSION AUDIENCES AS TO KNOWLEDGE OF NUTRITION IN RELATION TO PERSONAL/FAMILY CHARACTERISTICS

Data in Table IX indicates differences in the mean number of knowledge indicators answered by Extension audiences in relation to personal/family characteristics. There are seven indicators of nutritional knowledge.

### Personal Characteristics

Age. When comparing the number of knowledges answered for EHCM and EFNEPP, the mean number ranged from 3.0 to 3.06 for ages 16 to 35; 2.79 to 3.4 for 36 to 55; and 3.0 to 3.33 for 56 and older. The T-test indicated no significance between audiences as related to any of the age groups and knowledge of nutrition. The EFNEPP scores were slightly higher in all three categories than the EHCM.

Table IX

Comparison of Extension Audiences as to Knowledge of Nutrition in Relation to Personal/Family Characteristics

| Personal/ Family Characteristics | Extension Audiences: EHCM No. of Respondents | EHCM Mean no. Knowledges Answered (7Possible) | EFNEPP No.of Respondents | EFNEPP Mean no. Knowledges Answered (7 Possible) | T Test | P |
|---|---|---|---|---|---|---|
| **Personal** | | | | | | |
| Age | | | | | | |
| 16-35 | 3 | 3.0 | 33 | 3.06 | 0.23 | 0.82 |
| 36-55 | 19 | 2.79 | 11 | 3.64 | 1.74 | 0.10 |
| 56+ | 28 | 3.00 | 6 | 3.33 | 0.48 | 0.64 |
| Marital Status | | | | | | |
| Widow | 8 | 1.75 | 6 | 3.83 | 2.61 | 0.02 |
| Married | 39 | 3.23 | 44 | 3.14 | -0.32 | 0.75 |
| **Family** | | | | | | |
| Number in Household | | | | | | |
| 1-2 | 28 | 2.75 | 10 | 3.40 | 1.16 | 0.27 |
| 3-4 | 20 | 3.20 | 24 | 3.00 | -0.48 | 0.64 |
| 5+ | 2 | 2.50 | 16 | 3.44 | 1.59 | 0.27 |
| Place of Residence | | | | | | |
| Farm | 24 | 2.50 | 45 | 3.31 | 2.27 | 0.03 |
| Non-farm | 26 | 3.31 | 5 | 2.40 | -1.58 | 0.16 |

Marital status. The widowed EHCM had 1.75 mean number of "yes" answers and EFNEPP had 3.83. The married homemakers had 3.23 for the EHCM and 3.14 for EFNEPP. The T-test indicated a significant (.02) relationship between the marital status of EHCM and EFNEPP and Knowledge of Nutrition for the widowed audience. Widowed EFNEPP scores were higher than the EHCM on Knowledge of Nutrition. No significant difference was found between EHCM and EFNEPP audiences who were married.

Family Characteristics

Number in household. The mean number of "yes" answers for EHCM ranged from 2.50 to 3.20 and 3.0 to 3.44 for EFNEPP. Data did not indicate a significant relationship between audiences for number of household residents and knowledge of nutrition. The EFNEPP scored higher in household numbers of 1-2 and 5+.

Place of residence. EHCM, living on a farm, had 2.50 "yes" answers as compared to 3.31 for EFNEPP. Non-farm EHCM scored 3.31 "yes" answers compared to 2.40 for EFNEPP. The T-test indicated a significant (.03) difference between EHCM and EFNEPP farm homemakers and knowledge of nutrition. EHCM, not living on a farm, scored higher than the EFNEPP non-farm residents. EFNEPP, living on a farm, scored higher than the EHCM farm residents.

# IV. COMPARISON OF EXTENSION AUDIENCES AS TO USE OF FOOD PURCHASE PRACTICES IN RELATION TO PERSONAL/FAMILY CHARACTERISTICS

Data in Table X analyzes the mean number of food purchase practices used when compared to personal and family characteristics. These are seven practices included.

## Personal Characteristics

Age. The mean number of food purchase practices used by the EHCM ranged from 4.86 to 5.37 and 4.67 to 4.79 for the EFNEPP. The T-test indicated no significance between age of homemakers and food purchase practices used. EHCM had higher mean scores in all three age groups.

Marital status. Widowed EHCM used 4.63 practices as compared to 5.0 EFNEPP. The married EHCM used 5.12 food practices and 4.72 EFNEPP. Data analyzed by the T-test indicated no significance between Extension audience marital status and the number of food purchase practices used.

## Family Characteristics

Number in household. For homemakers in 1-2 and 5+ member households, the number of food purchase practices used ranged from 4.0 to 4.90. The EHCM, living in 3-4 member households, used 5.50 food purchase practices as compared to 4.67 for the EFNEPP. When analyzed, the T-test indicated a significant (.03) relationship between 3-4 member households and food purchase practices used. EHCM scored higher

Table X

Comparison of Extension Audiences as to Use of Food Purchase Practices in Relation to Personal/Family Characteristics

| Personal Family Characteristics | Extension Audiences: EHCM No. of Respondents | EHCM Mean no. Food Practices (7 Possible) | EFNEPP No. of Respondents | EFNEPP Mean no. Food Practices (7 Possible) | T Test | P |
|---|---|---|---|---|---|---|
| **Personal** | | | | | | |
| Age | | | | | | |
| 16-35 | 3 | 5.30 | 33 | 4.79 | -0.75 | 0.51 |
| 36-55 | 19 | 5.37 | 11 | 4.73 | -1.39 | 0.19 |
| 56+ | 28 | 4.86 | 6 | 4.67 | -0.29 | 0.78 |
| Marital Status | | | | | | |
| Widow | 8 | 4.63 | 6 | 5.00 | 0.48 | 0.64 |
| Married | 39 | 5.12 | 44 | 4.72 | -1.56 | 0.12 |
| **Family** | | | | | | |
| Number in Household | | | | | | |
| 1-2 | 28 | 4.86 | 10 | 4.90 | 0.08 | 0.94 |
| 3-4 | 20 | 5.50 | 24 | 4.67 | -2.23 | 0.03 |
| 5+ | 2 | 4.00 | 16 | 4.81 | 0.76 | 0.57 |
| Place of Residence | | | | | | |
| Farm | 24 | 5.38 | 45 | 4.87 | -1.78 | 0.08 |
| Non-farm | 26 | 4.81 | 5 | 3.80 | -1.60 | 0.17 |

than EFNEPP in 3-4 member households and EFNEPP in 1-2 and 5+ households.

Place of residence. EHCM farm residents used 5.38 practices as compared to 4.87 used by EFNEPP. Non-farm EHCM used 4.81 food purchase practices as compared to 3.80 used by EFNEPP. The EHCM used more food purchase practices.

## V. COMPARISON OF EXTENSION AUDIENCES AS TO USE OF FOOD AND MEAL PLANNING PRACTICES IN RELATION TO PERSONAL/FAMILY CHARACTERISTICS

Data in Table XI indicates the mean number of food and meal planning practices used by Extension audiences. There were nine possible "yes" answers.

### Personal Characteristics

Age. When comparing data according to age, EHCM used 6.10 to 6.67 food and meal planning practices, in the three age categories. In comparison, EFNEPP used 2.0 to 3.18 practices. Significant relationships between audience in the three age categories are as follows: age 16 to 35 was .001; 36 to 55 was .008; and 56+ was .003. The EHCM used more of the food and meal planning practices than the EFNEPP.

Marital status. Widowed EHCM used 6.37 food and meal planning practices as compared to 2.83 used by EFNEPP. Similarly, the married EHCM used 6.36 practices compared to 2.48 by EFNEPP. The T-test

Table XI

Comparison of Extension Audiences as to Use of Food and Meal Planning Practices in Relation to Personal/Family Characteristics

| Personal Family Characteristics | Extension Audiences: EHCM No. of Respondents | EHCM Mean no. Food Practices (9 Possible) | EFNEPP No. of Respondents | EFNEPP Mean no. Food Practices (9 Possible) | T Test | P |
|---|---|---|---|---|---|---|
| **Personal** | | | | | | |
| Age | | | | | | |
| 16-35 | 3 | 6.67 | 33 | 2.39 | -7.84 | 0.0001 |
| 36-55 | 19 | 6.10 | 11 | 3.18 | -4.18 | 0.0008 |
| 56+ | 28 | 6.46 | 6 | 2.00 | -6.47 | 0.0003 |
| Marital Status | | | | | | |
| Widow | 8 | 6.37 | 6 | 2.83 | -3.60 | 0.01 |
| Married | 39 | 6.36 | 44 | 2.48 | -9.25 | 0.0001 |
| **Family** | | | | | | |
| Number in Household | | | | | | |
| 1-2 | 28 | 6.57 | 10 | 2.50 | -5.60 | 0.0001 |
| 3-4 | 20 | 6.10 | 24 | 2.33 | -6.29 | 0.0001 |
| 5+ | 2 | 5.50 | 16 | 2.81 | -3.82 | 0.02 |
| Place of Residence | | | | | | |
| Farm | 24 | 6.42 | 45 | 2.67 | -8.17 | 0.0001 |
| Non-farm | 26 | 6.27 | 5 | 1.20 | -11.16 | 0.0001 |

indicated a significant (.01) level between audiences for widowed homemakers and for married, a level of .0001. EHCM used more food and meal planning practices then the EFNEPP.

Family Characteristics

Number in household. In the three divisions for number in the household (1-2,3-4,5+), the EHCM used 5.50 to 6.57 food and meal planning practices. The EFNEPP used 2.33 to 2.81 practices. A significant relationship was indicated between audiences for the three categories in relation to food and meal planning practices used by the two audiences. A significantly higher number of food and meal planning practices were used by EHCM than the EFNEPP.

Place of residence. Of homemakers living on a farm, the EHCM used 6.42 practices and the EFNEPP used 2.67 practices. For non-farm residents the EHCM used, 6.27 practices and the EFNEPP used 1.20 practices. The T-test indicated a significant (.001) relationship between audience and place of residence (farm and non-farm) and food and meal planning practices used by the Extension audiences. EHCM used more food and meal planning practices than the EFNEPP.

# VI. COMPARISON OF EXTENSION AUDIENCES AS TO USE OF FOOD PREPARATION PRACTICES IN RELATION TO PERSONAL/FAMILY CHARACTERISTICS

Data in Table XII indicates the relationship between personal and family characteristics and the use of food preparation practices by the EHCM and EFNEPP. There are eight food preparation practices included in this study.

## Personal Characteristics

Age. The mean number of food preparation practices used by EHCM ranged from 7.0 to 7.32 for the three age categories (16-35, 36-55, 56+). In comparison, the EFNEPP used 2.5 to 3.39 practices. A significant (.004) relationship between age and food preparation practices used was determined by the T-test in the 16 to 35 and 56+ categories. A higher level of significance (.0004) was found in the 36 to 55 category. The EHCM used more food preparation practices than the EFNEPP.

Marital status. Widowed ECHM used 6.88 food preparation practices in comparison to 3.0 used by EFNEPP. In comparison the married EHCM used 7.38 food preparation practices and the EFNEPP 3.27. A significant relationship was indicated between marital status and the number of food preparation practices used at the .01 level for widowed and .0001 for married homemakers. The EHCM used more food preparation practices than the EFNEPP.

Table XII

Comparison of Extension Audiences as to Food Preparation Practices in Relation to Personal/Family Characteristics

| Personal Family Characteristics | Extension Audiences: EHCM No. of Respondents | EHCM Mean no. Food Practices (8 Possible) | EFNEPP No. of Respondents | EFNEPP Mean no. Food Practices (8 Possible) | T Test | P |
|---|---|---|---|---|---|---|
| **Personal** | | | | | | |
| Age | | | | | | |
| 16-35 | 3 | 7.00 | 33 | 3.39 | -4.87 | 0.004 |
| 36-55 | 19 | 7.26 | 11 | 3.18 | -5.07 | 0.0004 |
| 56+ | 28 | 7.32 | 6 | 2.50 | -4.93 | 0.004 |
| Marital Status | | | | | | |
| Widow | 8 | 6.88 | 6 | 3.00 | -3.45 | 0.01 |
| Married | 39 | 7.38 | 44 | 3.27 | -9.81 | 0.0001 |
| **Family** | | | | | | |
| Number in Household | | | | | | |
| 1-2 | 28 | 7.14 | 10 | 3.20 | -5.12 | 0.0004 |
| 3-4 | 20 | 7.45 | 24 | 3.21 | -7.31 | 0.0001 |
| 5+ | 2 | 7.50 | 16 | 3.31 | -5.04 | 0.002 |
| Place of Residence | | | | | | |
| Farm | 24 | 7.12 | 45 | 3.42 | -8.36 | 0.0001 |
| Non-farm | 26 | 7.42 | 5 | 1.60 | -13.31 | 0.0001 |

Family Characteristics

Number in household. The EHCM used 7.14 to 7.50 food preparation practices in all three household categories: 1-2.3-4.5+ residents. In comparison, the EFNEPP used 3.20 to 3.31 practices. A significant relationship was indicated between the number in the household and the number of food preparation practices used in all three household groups. The EHCM used a significantly higher number of food preparation practices than the EFNEPP.

Place of residence. EHCM farm residents used 7.12 food preparation practices as compared to 3.42 used by EFNEPP. EHCM non-farm residents used 7.42 practices in comparison to 1.60 used by EFNEPP. A significant (.0001) relationship was determined by the T-test for place of residents and food preparation practices used. The EHCM used more food preparation practices than the EFNEPP.

## VII. COMPARISON OF EXTENSION AUDIENCES AS TO TOTAL SCORE FOR KNOWLEDGE OF NUTRITION AND FOOD PRACTICES USED IN RELATION TO PERSONAL/FAMILY CHARACTERISTICS

Data in Table XIII indicates the relationship between personal and family characteristics and the total number of knowledge indicators and food and nutrition practices on the Food Behavior Checklist used by Extension audiences. (These indicators of knowledge and food practices are named "practices" in the following discussion.) Thirty practices were included in this study.

Table XIII

Comparison of Extension Audiences as to Total Food Practices Used in Relation to Personal/Family Characteristics

| Personal Family Characteristics | Extension Audiences: EHCM No. of Respondents | EHCM Mean no. Total Practices (30 Possible) | EFNEPP No. of Respondents | EFNEPP Mean no. Total Practices (30 Possible) | T Test | P |
|---|---|---|---|---|---|---|
| **Personal** | | | | | | |
| Age | | | | | | |
| 16-35 | 3 | 23.0 | 33 | 14.21 | -5.18 | 0.0002 |
| 36-55 | 19 | 22.47 | 11 | 15.45 | -3.07 | 0.009 |
| 56+ | 28 | 22.46 | 6 | 13.17 | -3.86 | 0.009 |
| Marital Status | | | | | | |
| Widow | 8 | 20.25 | 6 | 15.33 | -1.60 | 0.14 |
| Married | 39 | 23.10 | 44 | 14.23 | -7.18 | 0.0001 |
| **Family** | | | | | | |
| Number in Household | | | | | | |
| 1-2 | 28 | 22.14 | 10 | 14.60 | -3.21 | 0.009 |
| 3-4 | 20 | 23.20 | 24 | 13.71 | -5.47 | 0.0001 |
| 5+ | 2 | 20.50 | 16 | 15.19 | -2.90 | 0.01 |
| Place of Residence | | | | | | |
| Farm | 24 | 24.38 | 45 | 14.91 | -5.67 | 0.0001 |
| Non-farm | 26 | 22.61 | 5 | 9.40 | -9.94 | 0.0001 |

Personal Characteristics

Age. The mean number of total practices used by the EHCM ranged from 22.46 to 23.0 and 13.17 to 14.21 for the EFNEPP. For homemakers in the younger age group, 16 to 35, a significant relationship of .0002 was determined by the T-test. For homemakers in age groups, 36 to 55 and 56+ the significant relaionship was .009. The EHCM used more total practices than the EFNEPP.

Marital status. Widowed EHCM used 20.25 practices as compared to 15.33 used by EFNEPP. This relationship was not determined to be significant. Married EHCM used 23.10 practices as compared to 14.23 used by EFNEPP. A significant (.001) relationship was determined between Extension audiences and total practices used. The EHCM used more of the practices than the EFNEPP.

Family Characteristics

Number in household. In households of 1-2 members, EHCM used 22.14 practices as compared to 14.60 by EFNEPP. This relationship was signifcant (.009). For 3-4 member households, EHCM used 23.20 as compared to 13.71 practices used by EFNEPP, a significant (.0001) relationship. In househlds with five or more members, EHCM used 20.50 practices as compared to 9.40 used by EFNEPP, a significantly higher (.01) number. The EHCM used more total practices than the EFNEPP.

Place of residence. EHCM homemakers who lived on a farm used 24.38 practices as compared to 14.91 used by EFNEPP. Non-farm EHCM used 22.61 and EFNEPP 9.40. Both of these relationships were

significantly (.0001) related between place of residence and practices used by Extension audiences. The EHCM used a higher number of practices than the EFNEPP.

## VIII. CHAPTER SUMMARY OF FINDINGS

A summary of findings of data in Tables VII-XIII indicates major differences for Food and Nutrition Practices and their relation to personal/family characteristics of EHCM and EFNEPP.

### Food and Nutrition Practices

Knowledge of nutrition. A higher percentage of EFNEP homemakers named the recommended servings for each food group, named two (2) foods from each food group, and named one good source each for Vitamins A and C, calcium and iron. More EHC homemakers named one example of high and low calorie foods from each food group.

Food purchase. Among the food purchasing practices, more EHC homemakers planned before food shopping, budgeted food money and/or food stamps, and bought needed food amounts for the best buy.

Food storage and sanitation. More EHC homemakers used recommended food preservation methods.

Food and meal planning. More EHC than EFNEP homemakers used the following food and meal planning practices: scheduled meals around family activities, provided recommended food amounts for family, served a variety of foods, provided nutritious snacks, served whole grain

bread/cereal, and watched the intake of over/underweight family members.

Food preparation. More EHC than EFNEP homemakers used more of the following food preparation practices: conserved nutrient value, served nutritional food, avoided food waste, conserved fuel energy, practiced three (3) methods of serving/cooking fruits/vegetables, practiced three (3) methods cooking meat, and practiced three (3) methods serving/ preparing dairy products.

Comparison of Characteristics and Food and Nutrition Practices

Mean scores. Mean scores of EHCM were higher than the EFNEPP according to age, the number in the household, place of residence, and married homemakers.

Knowledge of nutrition. Comparison between characteristics and knowledge of nutrition differed significantly for farm residents and widowed homemakers in both audience groups. The EHCM answered more knowledge indicators for both characteristics than the EFNEPP.

Food purchase. Use of food purchase practices and homemakers with 3-4 family members was significantly related. The EHCM used more of the practices than the EFNEPP.

Food and meal planning. When comparing the age, number in household, place of residence and marital status of both audiences, there was a significant relationship with food and meal planning. EHCM used more of the practices in all areas than the EFNEPP.

Food preparation. Data indicated a significant relationship between age, marital status, number in household, and place of residence of EHCM and EFNEPP homemakers and food preparation. EHCM used more of the practices than the EFNEPP.

Total practices used. The age, number in household, place of residence, and marital status in both EHCM and EFNEPP audiences had a significant relationship to the total number of practices used by homemakers. The EHCM used more of the practices than the EFNEPP.

# CHAPTER V

## SUMMARY, IMPLICATIONS, AND RECOMMENDATIONS

### I. PURPOSE

The purpose of this study was to compare food consumption, nutritional knowledge, and food behavior practices of Extension Homemaker Club Members (EHCM) and Expanded Food and Nutrition Program Participants (EFNEPP) in Hawkins County, Tennessee. This included the following specific objectives:

1) To determine differences in selected characteristics
2) To determine differences in scores of EHCM and EFNEPP on the Food Behavior Checklist
3) To determine differences in dietary intake between those in the two groups based on the 24-hour food recall.

### II. METHODS OF PROCEDURE

Two random samples of 50 of each audience were used for the study. The sample consisted of 50 Extension Homemaker Club Members and 50 Expanded Food and Nutrition Education Program Participants.

Data were obtained through interviews with the homemakers. Instruments used were the EFNEP 24-hour Food Recall and the Food Behavior Checklist.

# III. MAJOR FINDINGS

## Personal/Family Characteristics

The EFNEP homemakers tended to be younger. Most all were not employed. There were more persons in the EFNEPP households, more living on farms, they had less income, and more received food stamps.

## Comparison of Audience and Adequacy of Food Consumption

Milk. A significant higher proportion of the EFNEP than of the EHCM consumed the recommended two servings of milk daily. In household groups of five or more, the EFNEPP consumed significantly more milk than did the EHCM. The consumption of milk for non-farm residence was significant for the Extension audiences.

Meat. A significantly higher percent of the EFNEPP than of the EHCM consumed the recommended servings of meat. The consumption of meat by the two audiences had a significant relationship for those not living on a farm. EHCM living in non-farm areas consumed more servings of meat than did the EFNEPP.

Fruits/vegetables. Extension audience was not significantly related to the homemakers' consumption of fruits/vegetables. The EHCM living in nonfarm areas consumed significantly more servings of fruits and vegetables than did the EFNEPP.

Bread/Cereal. Extension audience was not significantly related to the homemakers' consumption of bread/cereal. The nonfarm EHCM

consumed significantly more servings of bread/cereal than did the EFNEPP living in nonfarm areas.

Food and Nutrition Practices

Knowledge of nutrition. A higher percentage of EFNEP homemakers named the recommended servings for each food group, named two foods from each food group, and named one good source each for Vitamins A and C, calcium and iron. More EHC homemakers named one example of high and low calorie foods from each food group.

Food purchase. Among the food purchasing practices, more EHC homemakers planned before food shopping, budgeted food money and/or food stamps, and bought needed food amounts for the best buy.

Food storage and sanitation. More EHC homemakers used recommended food preservation methods.

Food and meal planning. More EHC than EFNEP homemakers used the following food and meal planning practices: scheduled meals around family activities, provided recommended food amounts for family, served a variety of foods, provided nutritious snacks, served whold grain bread/cereal, and watched the intake of over/underweight family members.

Food preparation. More EHC than EFNEP homemakers used the following food preparation practices: conserved nutrient value, served nutritional food, avoided food waste, conserved fuel energy, practiced three methods of serving/cooking fruits/vegetables, practiced three

methods cooking meat, and practiced three methods serving/preparing dairy products.

Comparison of Characteristics and Food and Nutrition Practices

Mean scores. Mean scores of EHCM were higher than the EFNEPP according to age, the number in the household, place of residence, and married homemakers. For age, scores ranged from 49.7 to 80.3. Scores for number in household ranged from 49.5 to 81.5. Place of residence comparisons reflected scores of 43.0 to 78.9. Married homemakes had scores of 51.7 to 80.1.

Knowledge of nutrition. Comparisons between characteristics and knowledge of nutrition differed significantly for farm residence and widowed homemakers in both audience groups. The EHCM answered more knowledge indicators for both characteristics than the EFNEPP.

Food purchase. Use of food purchase practices and homemakers with 3-4 family members were significantly related. The EHCM used more of the food purchase practices than the EFNEPP.

Food and meal planning. When comparing the age, number in household, place of residence and marital status of both audiences, there was a significant relationship with food and meal planning. EHCM used more of the practices in all areas than the EFNEPP.

Food preparation. Data indicated a significant relationship between age, marital status, number in household, and place of

residence of EHCM and EFNEPP homemakers and food preparation. EHCM used more of the practices than the EFNEPP.

Total practices used. The age, number in household, place of residence, and marital status in both EHCM and EFNEPP audiences had a significant relationship to the total number of practices used by homemakers. The EHCM used more of the practices than the EFNEPP.

## IV. IMPLICATIONS

An overall study of the findings concerning personal/family characteristics indicated that EFNEP homemakers were younger and had more family members living at home. In contrast, the EHC members were older and many had households of only one or two members. This could indicate that programs should be planned for specific audience needs.

The findings according to adequacy of food consumption by audience indicates that more EFNEPP consumed the recommended servings of milk and meat. Both audiences consumed less than the recommended servings for fruit/vegetable and more of the bread/cereal. Consideration might be given to exploring ways of getting individuals to adopt the practice.

The one characteristic most influential on food consumption was place of residence, i.e. non-farm residence. More information may need to be gathered to determine why non-farm residents have different food consumption patterns.

More EFNEP could answer the "knowledge of nutrition" section of the Food Behavior Checklist, except for high/low calorie foods. The EHC used more of the practices for food purchasing, food storage and

sanitation, food and meal planning and food preparation. Again, this may imply a need to plan programs to the individual needs.

When food practices were studied in relation to the characteristics, nutritional knowledge was related significantly to farm residence and widowed status. Food purchase was related significantly only to households with three-four family members. In comparison, food and meal planning, food preparation, and total practices were related to all four characteristics, age, number in household, place of residence, and marital status. This may imply programs should be planned according to audience irregardless of their characteristics.

## V. RECOMMENDATIONS

Recommendations for further study could include:

1) Study of effective teaching methods for different age groups;
2) Study affect of intensive nutrition education as opposed to periodic lessons;
3) Study characteristics of non-farm homemakers in relation to food consumption and food practices;
4) Study characteristics in relation to EFNEP homemaker's use of food practices;
5) Study the methodology for collecting the data. Some data on the food behavior checklist for EFNEPP were recorded based on observation.

EHCM data were obtained by direct question. Homemakers may respond as they been taught rather than as they do.

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# APPENDICES

APPENDIX A
Copies of EFNEP Family History and Food Recall Forms

OMB NO. 40R3418

# 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 | | CHECK IF "YES" | |
|---|---|---|---|---|---|
| | | Male (9) | Female (10) | Now in School (11) | Participated in Child Nutrition Programs last week (12) |
| | | | | | |
| | | | | | |
| | | | | | |
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| | | | | | |
| | | | | | |
| | | | | | |
| NO. OF FAMILY MEMBERS _____ | TOTALS → | | | | |

13. HIGHEST GRADE IN SCHOOL COMPLETED BY HOMEMAKER

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

14. CHECK FOR HOMEMAKER

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

15. TERMINATION DATE AND REASON

16. PLACE OF RESIDENCE

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

## 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: | | | | |
| TOTAL NO. OF SERVINGS | (5) | (6) | (7) | (8) |
| 9. TOTALS 1 OR MORE SERVINGS OF EACH OF FOUR FOOD GROUPS. | 1 | 1 | 1 | 1 |
| | ☐ YES ☐ NO | | | |
| 10. TOTALS 2 OR MORE SERVINGS MILK/MEAT; 4 OR MORE VEG/FRUIT AND BREAD/CEREALS | 2 | 2 | 4 | 4 |
| | ☐ YES ☐ NO | | | |

4. TOTAL ACTUAL INCOME FOR FAMILY LAST MONTH?

$_____

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

Check one:

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

GPO 876 867

APPENDIX B
Copy of Food Behavior Checklist Form

| HOMEMAKER NAME | NUMBER | AIDE | DATE OF ENROLLMENT |
|---|---|---|---|
| | | | |

## FOOD BEHAVIOR CHECKLIST

**INSTRUCTIONS**

1. For each question put a check (✓) in the appropriate block indicating Homemaker's behavior.
2. Count the number of checks (✓) in each column (NA, DK, YES, NO) and enter totals below.
3. Add the "YES" scores to the "NO" scores and enter the sum on the appropriate line.
4. Refer to SEA Form 173 (SCORING TABLE) and enter the scores on the bottom line of this form.
5. Copy the dates and scores onto the bottom two lines of the FOOD AND NUTRITION PROGRESSION RECORD (SEA Form 271) under the appropriate months in program time.

NA = Not applicable DK = Don't know
YES = Homemaker does this NO = Homemaker doesn't do this

| | DATE FIRST | | | | DATE SECOND | | | | DATE THIRD | | | | DATE FOURTH | | | | DATE FIFTH | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **KNOWLEDGE OF NUTRITION** | NA | DK | YES | NO | NA | DK | YES | NO | NA | DK | YES | NO | NA | DK | YES | NO | NA | DK | YES | NO |
| 1. Can name the number of servings from each food group appropriate for his/her needs and those of each family member. (*For example*, adults need 2 servings of milk; children need 3-4 servings.) | | | | | | | | | | | | | | | | | | | | |
| 2. Can name two foods from each of the food groups. | | | | | | | | | | | | | | | | | | | | |
| 3. Can describe the recommended serving size of a food in each food group. (*For example*, one slice of bread, 8 oz. of milk, 2-3 oz. of meat, ½ cup cooked vegetables.) | | | | | | | | | | | | | | | | | | | | |
| 4. Can name at least one good source each of Vitamin A, Vitamin C, Calcium and Iron. | | | | | | | | | | | | | | | | | | | | |
| 5. Can name at least one example of a high and low calorie food in each food group. | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| **FOOD PURCHASE** | NA | DK | YES | NO | NA | DK | YES | NO | NA | DK | YES | NO | NA | DK | YES | NO | NA | DK | YES | NO |
| 6. Plans before food shopping in at least two of the following ways: makes a list; writes a menu; checks food advertisements for store specials; checks supply of food in the house. | | | | | | | | | | | | | | | | | | | | |
| 7. Stretches the food dollar using at least two of the following: compares food prices; uses nonfat dry milk; uses store brands or plain-label products when they are cheaper; buys day-old bread; buys specials; uses free or reduced price food. | | | | | | | | | | | | | | | | | | | | |
| 8. Knows how to obtain food stamps and does so when family needs them. | | | | | | | | | | | | | | | | | | | | |
| 9. Budgets food money and/or food stamps so the family has enough food throughout pay period. | | | | | | | | | | | | | | | | | | | | |
| 10. Buys food in amounts to meet needs and gets the best buy in terms of unit price and cost per serving. | | | | | | | | | | | | | | | | | | | | |
| 11. Uses one or more free or cheaper sources of food such as home grown food, wild game, fresh fish, edible plants and berries or exchanges work for food (barter system). | | | | | | | | | | | | | | | | | | | | |
| 12. Grows vegetables for family use. | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| **FOOD STORAGE AND SANITATION** | NA | DK | YES | NO | NA | DK | YES | NO | NA | DK | YES | NO | NA | DK | YES | NO | NA | DK | YES | NO |
| 13. Stores perishable foods safely and keeps hot food hot and cold food cold. | | | | | | | | | | | | | | | | | | | | |
| 14. Keeps dishes, utensils, appliances and cabinets clean. | | | | | | | | | | | | | | | | | | | | |
| 15. Stores non-perishable foods properly. | | | | | | | | | | | | | | | | | | | | |
| 16. Disposes of garbage promptly. | | | | | | | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 17. Uses recommended food preservation methods for canning, freezing and drying. | | | | | | | | | | | | | | | | | | | | |
| 18. Practices proper control methods for insects, rodents and pets in the kitchen. | | | | | | | | | | | | | | | | | | | | |
| **FOOD AND MEAL PLANNING** | NA | DK | YES | NO | NA | DK | YES | NO | NA | DK | YES | NO | NA | DK | YES | NO | NA | DK | YES | NO |
| 19. Schedules meals around activities of family members. | | | | | | | | | | | | | | | | | | | | |
| 20. Provides family members with servings and amounts as recommended by the food guide. | | | | | | | | | | | | | | | | | | | | |
| 21. Serves a variety of foods from each food group daily. | | | | | | | | | | | | | | | | | | | | |
| 22. Serves food each day which are good sources of iron. | | | | | | | | | | | | | | | | | | | | |
| 23. Provides nutritious snacks when needed. | | | | | | | | | | | | | | | | | | | | |
| 24. Serves whole grain bread and cereals daily. | | | | | | | | | | | | | | | | | | | | |
| 25. Serves Vitamin A and C food to meet needs. | | | | | | | | | | | | | | | | | | | | |
| 26. Watches food intake of overweight and underweight family members. | | | | | | | | | | | | | | | | | | | | |
| 27. Plans ways to provide breakfast to family. | | | | | | | | | | | | | | | | | | | | |
| **FOOD PREPARATION** | NA | DK | YES | NO | NA | DK | YES | NO | NA | DK | YES | NO | NA | DK | YES | NO | NA | DK | YES | NO |
| 28. Conserves nutrient value of food in three of the following ways: uses small amounts of liquid for fruit/vegetable cookery; uses appropriate cooking times and temperatures; retains cooking liquid for future uses; avoids rinsing rice and noodle products before and after cooking. | | | | | | | | | | | | | | | | | | | | |
| 29. Can follow recipe. (Can measure and mix according to directions and obtain an acceptable finished product.) | | | | | | | | | | | | | | | | | | | | |
| 30. Makes an effort to serve nutritional food that family enjoys. | | | | | | | | | | | | | | | | | | | | |
| 31. Prepares food to use edible parts and avoid waste. (*For example*, removes a minimum of flesh when peeling; prepares amount family will eat or plans for and uses leftovers.) | | | | | | | | | | | | | | | | | | | | |
| 32. Conserves fuel energy in cooking practices and food handling. (*For example*, bakes several things at once, does not let water run needlessly; efficiently uses range top burners.) | | | | | | | | | | | | | | | | | | | | |
| 33. Practices at least three methods of serving/cooking vegetables and fruits, including a low calorie method. | | | | | | | | | | | | | | | | | | | | |
| 34. Practices at least three methods of cooking meat or meat substitutes, including a low calorie method. | | | | | | | | | | | | | | | | | | | | |
| 35. Practices at least three methods of serving/preparing dairy products, including a low calorie method. | | | | | | | | | | | | | | | | | | | | |
| **TOTAL** | | | | | | | | | | | | | | | | | | | | |
| **YES + NO** | | | | | | | | | | | | | | | | | | | | |
| **SCORE** | | | | | | | | | | | | | | | | | | | | |

# VITA

Judy Gray Cravens was born to Mr. and Mrs. Doyal Gray on September 5, 1949, in Hamblen County, Tennessee. She was graduated from Morristown High School in June, 1967.

She attended Carson-Newman College, Jefferson City, Tennessee, where she received a Bachelor of Science degree in Vocational Home Economics Education in 1971. She was graduated from The University of Tennessee, Knoxville, with a Master of Science degree in Agriculture Extension in December, 1986.

She is a member of Mortar Board Honor Society; Epsilon Omicron Phi, home economics honorary; Epsilon Sigma Phi, national Extension honorary; Gamma Sigma Delta; and Tennessee Extension Home Economics Association.

She was employed by the Clemson University Extension Service, South Carolina, from 1971-74 and since June, 1974 as extension agent in Hawkins County.

She was married to Larry Cravens in 1970 and has one daughter, Amy.