

EVALUATION OF THE EXPANDED FOOD AND NUTRITION EDUCATION
PROGRAM (EFNEP) IN SELECTED AREAS OF VIRGINIA:
EXTENT AND RETENTION OF DIETARY IMPROVEMENT
AND RELATED FAMILY FACTORS

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ABSTRACT

Dietary improvement was assessed using 24-hour food recall in a sample of 180 homemakers who had completed six to 18 months of instruction in the Virginia Expanded Food and Nutrition Education Program (EFNEP) to determine whether they retained dietary improvement six to 36 months after leaving the program. These homemakers provided additional information on Perceived Educational Gains and Program Benefits received from participating in EFNEP. Family factors were explored which were believed to be related to dietary change - Family Composition, Family Resource Assistance, Household Roles and Responsibilities, Family Support, and Family Diet Control.

Diet Scores increased significantly ($p < .01$) from program Entry to Exit; greatest increases were in average daily servings from milk and fruit-vegetable groups. Slight but significant ($p < .01$) regression occurred in average Diet Score and servings of milk from Exit to Follow-up. Homemakers with higher Diet Scores at program Entry had higher scores at program Exit and Follow-up, and higher Program Benefit Scores. Length of time in program was not significantly associated with Dietary Improvement or Retention. High average Educational Gain and Program Benefit Scores at Follow-up were evidence that EFNEP was successful from the perspective of homemakers served.

Family Composition was not associated with Dietary Improvement. Family Support emerged as the only family measure related to diet; higher Family Support Scores were associated not only with greater Perceived Educational Gains and Program Benefits, but also with higher Diet Scores at program completion and follow-up. Results of the study confirmed the Virginia EFNEP to be effective in improving diets of homemakers and sustaining these changes, and suggested a key role for family support in influencing dietary outcome and program success from the view of participants.

To my family,
including brother Ed,
who assured me that I could handle it.

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Introduction

Importance of Evaluation Studies

Evaluation studies of federally funded food and nutrition programs are necessary in order to demonstrate program effectiveness, to determine to what degree target populations are being served and whether or not continued funding is justified, and to provide valuable feedback for those involved in all stages of planning and implementing the program. Within the past decade, studies have been conducted which address the impact of the Expanded Food and Nutrition Education Program (EFNEP) on low-income homemakers six to 36 months after program completion in at least twelve states, including Alabama, California, Georgia, Louisiana, Massachusetts, Maryland, Michigan, Missouri, Nebraska, New York, Oklahoma and Pennsylvania (Leidenfrost, 1986). A similar study to assess the program's effectiveness was needed in Virginia.

EFNEP - Background

EFNEP aims toward changing behavior to achieve a balanced diet. From the beginning of the program in 1969, paraprofessional aides - frequently from low-income areas - have been recruited and trained to teach food and nutrition skills to eligible families. The aide or

technician, often indigenous to the clientele group, has served as an effective vehicle for communicating nutrition principles to target audiences from the inception of the program (Mifflin, Verma & Jones, 1976). Audiences include both adult homemakers and youth (4-H EFNEP), individually or in groups.

Overall benefits of the program for target homemakers include improved diets and nutrition knowledge and increased ties with their communities. Intended areas of competency for program homemakers include resource management, meal planning, food selection, purchasing and preparation for themselves and their families. Improvement is also desired in areas of food storage, safety and sanitation (USDA, 1979; Virginia EFNEP, 1981). All of these areas of concern are reflected in corresponding EFNEP subject matter topics and learning activities. Gardening and food production are addressed for families where time and other resources permit.

EFNEP in Virginia

During 1984-1985, the enrollment period for homemakers in the current study, 30% of the EFNEP homemakers in Virginia were white, 68% black, and 2% other minorities (Virginia EFNEP, 1985). Of total enrolled homemakers for that reporting period, 41% lived

in rural areas and small towns with populations under 10,000, 10% in small towns and cities of 10,000 to 50,000, and 49% resided in large urban or suburban areas of over 50,000. Sixty-six percent of the families had children enrolled in child nutrition programs such as school lunch, 62% were receiving food stamps and 36% participating in the Women, Infants and Children (WIC) program (Virginia EFNEP, 1985). In 1981 about half of Virginia EFNEP homemakers were estimated to be 34 years or younger (Barton, 1981).

Definition of EFNEP Terms

EFNEP - Expanded Food and Nutrition Education Program.

EFNEP mandate or mission - the main objective of EFNEP, which is "to help low-income families, especially those with young children to acquire the knowledge, skills, attitudes, and changed behavior necessary to improve their diets in normal nutrition" (Virginia EFNEP, 1981, p. 1).

Program family - family enrolled in EFNEP. Enrollment means the point at which the Family Record Form A is completed and the first 24-hour food recall (Form B) is taken (Appendix 1) (USDA, 1980). Program families are generally characterized by (a) low income level as

determined by the Poverty Income Guidelines (USDHHS, 1985) at time of enrollment, (b) young children in the household, and (c) household participation in or eligibility for WIC, food stamps or other public resource assistance.

Program homemaker - member of program family who is targeted for nutrition education by EFNEP. In Virginia this is usually the housewife or mother, since in 1985 the majority of homemakers (98%) were female (Virginia EFNEP, 1985).

Technician - the paraprofessional nutrition educator employed and trained by the Cooperative Extension Service (CES) to recruit, enroll and work with low-income families in fulfilling the EFNEP mission. The technician is also known in other states as program aide or Nutrition Education Assistant (NEA).

Graduation from EFNEP - completion of EFNEP learning activities and/or achievement of improved diet and food practices as measured by scores from 24-hour food recall (see Appendix 1, Form B) (USDA, 1980). Corresponding terms are graduated family and graduated homemaker.

Balanced or healthy diet - a daily diet or food pattern which meets the recommended number of servings from each of the basic food groups; specifically the 2-2-4-4 pattern for milk products, meats/meat alternates,

fruits/vegetables and breads/cereals, as outlined in the Four Food Groups for Fitness Guide for adult homemakers who are not pregnant or lactating (Hertzler, 1986).

Purpose of Present Study

The primary purpose of this evaluation was to assess long term impact of the Virginia EFNEP on a group of graduated homemakers representative of both rural and urban populations in the state. In other words, if dietary improvement were achieved, how well would it be maintained six months to a year or more after leaving the program? To determine this, extent of dietary improvement achieved between entry and exit by homemakers in the sample had to be assessed.

Secondly, what did participants feel they gained from the program? Rinke (1986) suggested that nutrition program evaluations include feedback from participants. The present study employed a brief homemaker questionnaire to assess both perceived educational gains and perceived program benefits resulting from program participation. Questions reflected the food/nutrition knowledge and behavior change areas upon which EFNEP focuses.

Finally, what impact if any did the family unit have on dietary behavior in initial dietary improvement or in retention/regression of improvement after leaving the

program? This study examined five aspects of the family unit believed to influence how families respond to nutrition education interventions such as EFNEP. They were family composition, family use of public resource assistance, household roles and responsibilities, family support of EFNEP, and homemaker control over family diet.

Review of Literature

Families as Decision-Making Units

A primary challenge in the field of nutrition education is that of how to predict dietary behavior - particularly in response to education or counseling efforts - and along with this, how to achieve dietary compliance.

In recent years, interdisciplinary research involving professionals in the fields of nutrition, anthropology, sociology, psychology, communications, education and human development, appears to have opened the field of nutrition education to a broader perspective.

Within the past two decades, researchers have grown interested in the relationship between family characteristics and food-related decisions made by family members (Anderson & Auslander, 1980; Caliendo & Sanjur, 1978; Chavez, Martinez & Yaschine, 1975; Cross, Herrmann & Warland, 1975; Frankle, 1985; Hertzler, 1984; Hertzler & Vaughan, 1979; Hertzler, Yamanaka, Nenninger & Abernathy, 1976; Murtaugh, 1984; Piwoz & Viteri, 1985; Schafer & Keith, 1981). Some view the family as comprised of interacting members which form a unit, which in turn interacts with the larger environment in the process of decision-making (Anderson & Auslander, 1980; Hook

& Paolucci, 1970; Kintner, Boss & Johnson, 1981; Paolucci, Hall & Axinn, 1977.) Others share a similar view of the family as a consumption unit (Coughenour, 1972; Food Purchasing, 1972; Murtaugh, 1984; Piwoz & Viteri, 1985; Yetley, Yetley & Aguirre, 1981), or as a whole which is greater than the sum of its members (Hannum & Mayer, 1984; Schilson & Valkenburg, 1984; Walters, Pittman & Norrell, 1984). Families have been viewed as units of decision-making power for years by those in the food and hospitality industries. Such a perspective is valuable in market research, but can also be shared by nutrition educators; they too are furnishing a product - a service product (M.D. Olsen, personal communication, March, 1986) which consists of tools intended to enable others to become more discriminating food consumers. Faced with a multitude of variables which influence food decisions of families (Paolucci et al., 1977), nutrition educators and program planners must identify those variables which have the greatest impact on families as they make food choices. Such factors should be addressed in the design of nutrition intervention programs, in order to improve delivery and achieve optimal outcome, i.e., balanced diets for all family members.

Many recognize the importance of addressing the entire household in planning nutrition and health

education programs directed toward both individuals and families (Anderson & Auslander, 1980; Caliendo & Sanjur, 1978; Frankle, 1985; Kintner et al., 1981, Piwoz & Viteri, 1985). Results of one study by Schafer and Keith (1981) suggests that the impact of immediate family on household food habits merits a closer look.

Hertzler (1983a, 1984) proposed an information processing model as a framework for explaining food habits of families. In the model, a family possessing such qualities as cohesiveness, harmony and organization or "solidarity" was said to be more capable of processing incoming nutrition information and translating it into behavioral changes. "Families may need help with skills in parenting and in family communication and decision-making in order to handle new information and increase change proneness" (Hertzler, 1983b, p. 558).

Some nutritionists have begun to look at types of family interaction in the hope of predicting effectiveness of nutrition education strategies with families according to which categories they belong, e.g., rigid/overperfectionist, severely discordant or consistent/cooperative (Hertzler, 1981). One implication of this type of research - and applicable to programs such as EFNEP - is that different family types might require different educational approaches for dietary behavior

change to occur.

A challenge which accompanies such an implication, however, is how to define and measure such categorizing characteristics of families. Hertzler (1981) took steps toward this by providing behavioral descriptions of families classified as rigid, conflict-ridden or cooperative with regard to dietary restrictions imposed on them to control obesity. She also identified several limitations of theoretical approaches which have prevailed in children's food habit research (Hertzler, 1983a, 1983b). One of these was a failure to define dietary behaviors of interest in measurable terms. She further emphasized need for a conceptual framework which was culturally unbiased.

Hertzler's assertions plus the efforts of researchers in both the fields of nutrition (Kintner et al., 1981) and family development (Hannum & Mayer, 1984; Joanning, Brewster & Koval, 1984; Oliveri & Reiss, 1984; Titelman, 1984; Walters et al., 1984) clearly indicate the importance of developing and selecting valid measures of family dimensions, so that relationships between family factors and dietary behavior can be examined more thoroughly.

Factors Affecting Dietary Behavior of Family Members

Five variables will be presented which (a) are family-related and (b) are believed to be connected with dietary behavior and/or nutritional status of family members. This represents an effort to identify those variables which emerge from recent research and theory as most salient in the study of family food habits and to lay groundwork for the formulation of operational measures. The reader should expect considerable overlap in both definition and measurement among these concepts, as they are sometimes difficult to separate.

The five are: (a) family composition, (b) household roles and responsibilities, (c) family support, (d) family communication, and (e) family stress. In the sections which follow, each will be defined and discussed in terms of how researchers have sought to measure them over the past fifteen years. Three methodological categories include questionnaire, interview and observational techniques of assessment for each of the five variables and are summarized in Table 1.

Family Composition

Definition. Family composition refers to those members who constitute a household unit, and who are

Table 1.

Summary of Selected Family Factors, Definitions and Measures

Concept	Definition	Measures		
		Questionnaire	Interview	Observation
1. Family Composition	Number and nature of members who constitute a household unit, viewed in relation to one another.	<p>Callendo & Sanjur, 1978 Family size or total number in household.</p> <p>Galler & Ramsey, 1985 Number of caretakers and father's presence.</p> <p>Hertzler et al., 1976 Number of adults in family.</p>	<p>EFNEP - Family Record Form (FRF) used in evaluation studies and routine recordkeeping.</p> <p>Coughenour, 1972 Six life cycle stages.</p> <p>Cross et al., 1975 Seven life cycle stages-homemaker perspective.</p>	

Table 1. (cont'd)

Concept	Definition	Measures		
		Questionnaire	Interview	Observation
2. Household Roles and Responsibilities	Sets of tasks implicitly or explicitly assigned to household members based on their traits and/or abilities. May also be based on gender and tradition, and related to resource control and power balance in family unit.	<p>Hertzler et al., 1986 Checklist, Shared Food Roles Score, degree of responsibility within family in performing food-related tasks (see also Family Communication).</p> <p>Moos & Moos, 1976 Kintner et al., 1981 Moos FES <u>organization</u> and <u>control</u> subscales of System Maintenance Scale component.</p> <p>Yetley et al., 1981 Behavioral and socio-psychological dimensions of household role structure in Mexican-American families.</p>	<p>Block et al., 1985 Fleming & Spiett, 1985 Questions asked of EFNEP homemakers regarding who in family performs specific food-related tasks.</p> <p>Coughenour, 1972 Five-point frequency response format; <u>adaptive</u> functional dimension of social activity focuses on homemaker tasks related to family food consumption (see also Family Communication).</p> <p>Keith & Schafer, 1982 Masculine and feminine activity indexes developed by subject rating of common household tasks.</p>	

Table 1. (cont'd)

Concept	Definition	Measures		
		Questionnaire	Interview	Observation
3. Family Support	Intrafamilial social reinforcement; in this study family support of homemaker involvement in EFNEP is of particular interest, but support can apply to any pursuit of a health goal via a set of positive health-related behaviors (adapted from Baranowski et al., 1982).	<p>Baranowski et al., 1982; Nader et al., 1983 Self-report scale, six-point frequency response format, diet and exercise items.</p> <p>Baranowski et al., 1983 Self-report, nine-point scale, family and spouse support of women's decision to breastfeed.</p> <p>Chavez et al., 1975 Frequency of certain aspects of childcare.</p> <p>Dixon, 1982 Single item, three-point response, assessing EFNEP family reaction to new foods.</p>	<p>Loris, et al., 1985 Five-point response format, assessing perceived reaction of teen father to partner's pregnancy.</p>	<p>Chavez et al., 1975 Supportive behaviors of parents towards children 0-2 years assessed by scalographic classification. Qualitative method.</p> <p>Hannum & Mayer, 1984 Family Interactional Coding System (FICS), involves interactional family task, videotaped and coded, behavioral categories related to support are Statements of Agreement/Disagreement Support/Nonsupport. Operational definitions provided.</p>

Table 1. (cont'd)

Concept	Definition	Measures		
		Questionnaire	Interview	Observation
3. Family Support (cont'd)		<p>Hertzler & Schulman, 1983 One-page self-report, family and group support of dieting efforts of working women.</p> <p>Moos & Moos, 1976 Kintner et al., 1981 Moos Family Environment Scale (FES) <u>cohesion</u> subscale of relationship component; compared with food intake of families. Operational definitions provided.</p>		<p>Minuchin et al., 1978 Family Task, quasi-natural technique used in structural family therapy - one aim is to identify <u>where</u> support lies within family rather than its presence or absence. Certain types of support viewed as dysfunctional.</p> <p>Waxman & Stunkard, 1980 Direct observation of obese and nonobese siblings originally for mealtime energy consumption, eating rate and physical activity (quantitative data); unexpected findings related to impact of parental support (qualitative data) on these behaviors.</p>

Table 1. (cont'd)

Concept	Definition	Measures		
		Questionnaire	Interview	Observation
4. Family Communication	"Systematic and patterned exchange of information that creates some level of shared meaning among family members" (Paolucci et al., 1977, p. 149).	Galler & Ramsey, 1985 "Child Experience and Type of Stimulation" component of household micro-environment questionnaire; parent-child interaction addressed.	Coughenour, 1972 Five-point frequency response format; <u>Integrative</u> dimension involves homemaker interaction with other family members regarding food activities. <u>Adaptive</u> dimension also includes question about family involvement in food decisions (see also Household Rules/Responsibilities).	Chavez et al., 1975 Mother-child interaction assessed by systematic time sampling; 17 areas assessed. Father-child interaction also observed.
		Hertzler et al., 1986 Checklist, Shared Food Roles score as indirect measure of nutrition information shared among family members.	Williams & Berry, 1984 Five-point frequency scale; communication score based on two questions dealing with financial disagreement between spouses.	Joanning et al., 1984 Communication Rapid Assessment Scale (CRAS), designed to distinguish between behaviors conducive vs destructive to communication between dyads - audiovisual.
		Hertzler et al., 1976 Checklist, Family Food Activity Score, number of food-related activities between teenage girls and adults in family (involves family roles but primarily addresses parent-child interaction).	Kiesges et al., 1983 Kiesges et al., 1986 Bob and Tom's method of Assessing Nutrition (BATMAN), partial interval time sampling used to assess parent-child interaction and child food behavior.	

Table 1. (cont'd)

Concept	Definition	Measures		
		Questionnaire	Interview	Observation
4. Family Communication (cont'd)		<p>Leonard et al., 1984 Family Eating and Activity Patterns Questionnaire, assesses meal pace and atmosphere; second questionnaire poses hypothetical family food situations; both address parents, both five-point frequency response format.</p> <p>Moos & Moos, 1976 Kintner et al., 1981 Moos FES <u>expressiveness</u> subscale of Relationship scale component; also both <u>intellectual-cultural orientation</u> and <u>moral-religious emphasis</u> subscales of Personal Growth scale component.</p>		<p>Leonard et al., 1984 Audiotaped verbalization of parents during actual home meal with children - naturalistic observation.</p> <p>Minuchin et al., 1978 Family Task - enables observation of communication patterns related to transactions between members (see also Family Support).</p>

Table 1. (cont'd)

Concept	Definition	Measures		
		Questionnaire	Interview	Observation
5. Family Stress	Events or conditions occurring in family life which place physical or emotional pressure on any family member, or on the whole family unit. Can lead to family conflict.	<p>McCubbin et al., 1983 Family Inventory of Life Events and Changes (FILE), 71-item checklist.</p> <p>Moos & Moos, 1976 Kintner et al., 1981 Moos FES <u>conflict</u> subscale of Relationship scale component.</p> <p>Steffens, 1983 Stressful Family Life Events Inventory; "pile up" Index derived from total number of events experienced. Focus on limited resource families.</p> <p>Strube & Barbour, 1984 Factors influencing decision to leave an abusive relationship assessed via intake form in a counseling setting for battered spouses.</p>	<p>Minuchin et al., 1978 Family Diagnostic Interview (see Observation).</p> <p>Titelman, 1984 Nodal events which trigger anxiety in families - must be ascertained over long period of time spent with family by Bowenian family therapist; part of larger, more Comprehensive Family Systems Assessment Profile (FSAP).</p>	<p>Minuchin et al., 1978 Changes in free fatty acid blood levels (biochemical measure) observed in children viewing argument between parents through one-way mirror; part of Family Diagnostic Interview. Focus on psychosomatic families.</p>

described and viewed in relation to one another. Hertzler and Vaughan (1979), in classifying family characteristics into structural and interactional categories, included family organization in the first group. One way to define this is by number and gender of adults in the family.

The concept of family organization as described by Hertzler and Vaughan (1979) and Anderson and Auslander (1980) encompasses more than physical composition of the household; it includes decision-making power structure and touches upon family roles, which is considered as a separate variable in this paper. Thus it could be said that family composition constitutes a component of family organization/structure.

Life cycle stage presents another way of classifying families according to composition, as seen in the work of Cross, Herrmann & Warland (1975). Determining a family's chronological and/or developmental stage entails a description of presence, number and age ranges of both adults and children in the household. In view of the fact that American families are no longer typical and vary widely in composition and structural pattern (Frankle, 1985), life cycle staging may need to be adapted to nonnuclear families - especially those led by single parents - in order to serve as useful in defining composition. In fact, specifying household type (e.g.,

nuclear, extended, single-parent) has been suggested as a way of describing composition (Piwoz & Viteri, 1985), and appears reasonable in light of the compositional diversity of households worldwide.

Measures. Family composition as measured in terms of number, age and gender of members is common, particularly in research which addresses demographic characteristics of families in relation to some other variable such as diet. Two components of Galler and Ramsey (1985)'s Questionnaire on Household Microenvironment were number of caretakers and father's presence, both of which could serve as indicators of household composition. These and other demographic variables were studied in relation to malnutrition in Barbados. Caliendo and Sanjur (1978) included family size or total number in household within the broader category of Demographic and Family Resources in questionnaire form while studying dietary status of preschoolers. Hertzler et al. (1976) used number of adults in family as one of three measures of family structure while studying iron status of low-income teenagers.

Similar family composition data has been gathered via interview in terms of life cycle stage. Coughenour's (1972) six stages ranged from childless/young married to childless/older married couples, and were classified

according to ages of youngest and oldest children. Cross et al. (1975) distinguished seven stages from single woman less than age 45 with no children to female head older than 60 years with children and husband no longer present. Thus presence or absence of spouse and children from the female homemaker's perspective formed criteria for life cycle category. Both of the above studies employed the homemaker as primary data source, and both examined food selection practices of families.

EFNEP employs a Family Record Form (see Appendix 1 - Form A) to obtain data on family size and composition at entry into program. Homemakers specify names, ages and gender of all who reside in the household, plus demographic data related to program eligibility. While the form does not ask exact relationship of each member listed to the homemaker, it can serve as a source of family composition and demographic data; it has been used as such in those EFNEP evaluation studies seeking to compare homemaker or family characteristics with dietary change (Amstutz & Dixon, 1986; Block et al., 1985; Brink, Tenney, Deegan & Ritchey, 1985; Jordan, 1970).

Household Roles and Responsibilities

Definition. Roles and responsibilities are difficult to separate when discussing the family; defining

family roles involves both functional and essentially theatrical aspects. For not only does a member fulfill an implicitly or explicitly-assigned set of tasks for the sake of smooth operation of the family unit, but he or she also is cast as parent, child, provider, childrearer, homemaker, et cetera - or combinations of these in certain situations, such as single-parent homes. A given set of tasks helps to define one's role within the family unit.

Further, a discussion of household roles must address resource distribution and power balance within the family unit; if one defines resource as that which one can offer to satisfy family needs and goals, then it is reasonable to assume that the greater balance of power would be held by the family member with access to more resources (Hesse-Biber & Williamson, 1984). Power in this sense is most commonly associated with the traditional provider role.

Household roles are greatly influenced by gender and tradition; despite changing sex roles and increased participation of women in the paid labor force, some believe traditional sex roles in families prevail (Ferree, 1984; Szinovacz, 1984). According to Szinovacz (1984), imbalance between men and women persists in areas of household division of labor, decision-making authority and sexual relations. Working minority women may have more

relative control over family resources than nonminority women, due to the smaller difference in earnings between men and women in both low- and middle-income minority families (Hesse-Biber & Williamson, 1984).

Of interest to nutrition educators is how assigned (and presumably accepted) roles and responsibilities within the family unit influence food choices and nutritional status of family members. Status consistency, a structural family characteristic, has been described as similarity in the backgrounds of a male-female pair in terms of education, race, religion, economics and occupation (Hertzler & Vaughan, 1979; Larkin, Owen & Rhodes, 1970). Hertzler and Vaughan (1979) suggested that unequal status between parents could play an important role in the food decisions of families. While they conceded that little conclusive research had been conducted in this area, they emphasized the need for nutrition educators to address the husband in the role of major provider and primary decision-maker. Programs addressing only mothers in the role of homemaker or food manager would prove inadequate if women had little authority in determining the daily household menu (Hertzler & Vaughan, 1979).

Piwoz and Viteri (1985) addressed similar issues from an international perspective. They asserted that most

health and nutrition education programs could achieve greater success if they addressed the people or factors influencing present food and health practices - such were considered co-variants_of_behavior. Co-variants included (a) tradition, (b) available resources and (c) those in the household who had decision-making power in areas of childcare and feeding (e.g., mother-in-law). Thus a childfeeding program targeting husbands and mothers-in-law, in a community where these figures held greater decision-making authority in childrearing, was considered more likely to succeed than one aimed solely at infants' mothers, who held least authority in the family. They added that a program striving to boost economic and social status of younger women in such societies might serve to stimulate innovation and effect behavioral change in matters of health and nutrition (Piwoz & Viteri, 1985). This is in agreement with the suggestions of Yetley et al. (1981).

Similarly, Shifflett and Hoskins (1985), in a discussion of Southwest rural Virginia women, expressed need for state and local governments to recognize and support the practice of household food and craft production. Such would enable a social and economical elevation of the roles of women who contribute in unique ways to the family income.

Measures. Yetley et al. (1981) developed operational measures for studying family role structures as they concerned food-related decisions in Mexican-American families. Questions were designed to address cultural, behavioral and sociopsychological dimensions of role structure. The study focused on homemakers from households with both husband and wife present. Construct validity was established, and responses coded to obtain scores which differentiated traditional and more liberal views of household sex roles, greater and lesser identification with traditional roles, and so forth. Contrary to stereotypes of Mexican-American families as traditionally sex-role assigned, food decisions involved men as well as women, and family money matters involved women as well as men. In this sample it was suggested that male involvement in family and food-related tasks was a cultural norm. Since women's role attachment or perceived importance of their roles as food managers was high, family receptivity to nutrition education was low; to accept such assistance would have been to confess incompetence in role performance.

Hertzler, Robbins and Walton (1986) used a checklist format to derive a Shared Food Roles Score which they defined as degree of shared responsibility within the family in performing food-related tasks. This score was

used to assess nutrition information shared among family members; in other words, food-related roles were used as an indirect measure of nutrition information communication. This was based on the rationale that "shared responsibility in food activities can provide the opportunity for exchange of food and nutrition information that individual family members have obtained through various [information] networks" (Hertzler et al., 1986, p. 208). Content validity of the Shared Food Roles Score was suggested in a statistically significant negative relationship between the score and single households; however, it correlated poorly with nutrition information networks. Authors agreed that shared roles might not reflect actual sharing of information within families.

The concepts of household roles and power structure are embodied in those subscales of the Moos FES (Moos & Moos, 1976) which comprise the System Maintenance component. The first is organization, defined as "the extent to which order and organization are important in the family in terms of structuring family activities, financial planning, and the explicitness and clarity of rules and responsibilities." The second, control, deals with "the extent to which the family is organized in a hierarchical manner, the rigidity of rules and procedures, and the extent to which family members order each other

around" (Moos & Moos, 1976, p. 360). In the study by Kintner et al. (1981), high levels of organization were associated with lower overall dietary quality in husbands ($p \leq .05$) while wives scoring high on the control subscale had both lower calcium intake and overall dietary quality ($p \leq .05$), reflected in a composite score for 12 nutrients.

Keith and Schafer (1982) interviewed 90 men and 162 women from white middle class Iowa families in which the wife was over 45 and no children were present. They gathered information on family roles and demographics. Depression was chosen as a measure of poor psychological well-being in view of its common incidence, and was assessed on an eleven-point symptom frequency scale. Respondents rated six household tasks on a five-point scale according to whether husband or wife performed each, from which authors derived a "feminine" activities index composed of dishwashing and grocery shopping, and a "masculine" activities index consisting of home repairs, lawn-yard work, and managing home finances (Keith & Schafer, 1982, p. 105). Scores were such that a high value indicated high involvement in either set of activities. Household task division was highly sex-linked. Well-being of both sexes was enhanced by greater involvement in masculine tasks; women were more involved in cross-sex tasks than men, and cross-sex

activities associated with greater well-being for women, but not for men. Authors attributed this to higher perceived esteem of the male role and associated tasks. Education, employment, occupation and sex-role ideology were resources associated with power in the family, i.e., factors determining household task allocation. Participating in cross-sex activities was viewed as nontraditional sex-role behavior. A strength of their method lay in having the subjects themselves classify tasks as masculine or feminine; indices thus formed were tailored to the study population.

Some researchers evaluating EFNEP (Block et al., 1985; Fleming & Splett, 1985) have asked specific questions during homemaker interviews regarding who in the family performs cooking and food shopping tasks. These and additional questions about household tasks might be useful in identifying family roles and responsibilities.

Finally, Coughenour (1972) employed interviews to compare family size with three major functional dimensions of family food consumption behavior, based on the Parsonian theory of goal-directed social action. He collected data from female homemakers in the southern United States (U.S.). Questions were asked using a five-point frequency format and addressed (a) adaptation to market supply and family demand for foods, (b) goal

gratification or attainment of family consumption goals and (c) integration or the effect of goal gratification on the family's view of itself. A combination of homemaker roles, food shopping practices and information networks was reflected in questions designed to assess adaptation. Examples included how often the homemaker asked family members for food suggestions, comparison shopped, and read newspaper articles about food. Coughenour's report did not address roles and activities of family members other than the homemaker.

Family Support

Definition. In the context of this discussion, family support refers to social or other reinforcement which comes from within the family unit. Baranowski, Nader, Dunn and Vanderpool (1982) defined intrafamilial support as "any input directly provided by another person or group that moves an individual toward his or her desired goals" (p. 163). Types of social support they specified were tangible or physical (e.g., money, resources), informational (facts in the form of healthful recipes), and emotional (praise, agreement).

The need for mobilizing family support was stressed by Frankle (1985) in achieving weight control for affected family members. According to Anderson and Auslander

(1980), a flexible and tolerant maternal attitude played an important role in the management of diabetes; they cited evidence for family conflict and poor relationship between parent and child as an obstacle to good diabetic control. Foley, Hertzler and Anderson (1979) reviewed parental attitudes in terms of how they affected a family's openness to change; disagreement between spouses with regard to childrearing practices was associated with poor nutritional status of children. Conceptual overlap between family support and communication was reflected in the question asked by Hertzler and Schulman (1983, p. 157): "Is family support defined as providing information or new ideas, as encouraging action, as listening, as reassuring, or as involvement in the dieting activity?" This presents a challenge in achieving distinct operational definitions for both family variables in nutrition education research.

Measures. Several investigators have used the questionnaire survey method in measuring family and social support. Following from their definition of intrafamilial social support, Baranowski et al. (1982) developed a self-report scale consisting of 22 exercise and 26 diet-related items, designed to assess perceived supportive behavior from family members regarding the respondent's exercise and dietary practices. The items

were valued as positive or negative, based on whether they promoted or inhibited desired health behavior changes. Informational, tangible and emotional support items were included for both diet and exercise categories. The instrument was designed for both adults and children, who responded on a six-point frequency format from "Never" to "More than once per day" (e.g., "A family member praised you for not using the salt shaker").

Their instrument was employed in Galveston, Texas to detect support changes in 24 families randomly assigned to either control conditions or an eight-week family health education program focusing on reduction of cardiovascular risk (Baranowski et al., 1982; Nader et al., 1983). Three categories of change were possible - increase, decrease or no change in supportive behavior. Greatest changes occurred in dietary support behaviors; for seven of 26 dietary items the experimental group experienced significantly greater change in the desired direction than did the control group. The same was true for four of 22 exercise items. Results suggested that teaching families how to provide support for positive health behavior changes can be successful in promoting dietary change (Baranowski et al., 1982).

In another study, Baranowski et al. (1983) administered a questionnaire to 358 low-income women who

had given birth within the same month. The questionnaire assessed the expected degree of supportiveness regarding breastfeeding from a list of significant others in their environment (e.g., grandmother, male partner) on a nine-point scale. The same instrument asked if the woman had decided to breastfeed or not, and which two persons or things influenced her decision the most. Chi square analysis was used to compare feeding decision with demographic, social support and social influence variables; authors used a linear logistics model to predict relative impact of support and influence on breastfeeding decision. Breastfeeders tended to be Anglo-American (white), married and from male-headed households ($p < .0001$). In predicting breastfeeding decisions they found that white women were influenced most strongly by a male partner, while for black women, a best friend had greater impact. Mexican-American women appeared to be influenced equally by multiple sources, with mother slightly prominent. It is notable that health professionals ranked low in impact on breastfeeding decision. Authors suggested that programs aiming toward specific population groups should involve key sources of social support in the lives of those individuals targeted for behavior change.

Hertzler and Schulman (1983) administered a one-page questionnaire to survey employed women of varying occupations from secretarial/clerical to supervisory/managerial. Its format was fixed-choice - part checklist and part multiple choice. In addition to descriptive data regarding (a) family background, (b) sources (channels or networks) of nutrition information, (c) nutrition knowledge, and (d) frequency of successful dieting attempts, the instrument addressed the women's perceived family and group support of dieting efforts. One set of items asked about events or activities engaged by self, family, co-workers and friends which supported their efforts; the other set dealt with those events or activities likely to negate or discourage dieting. University faculty review and pretesting were conducted in establishing content validity; construct validity was addressed through (a) correlation of items both within and across both sets of questions, and (b) a principle components analysis of the 15 items (nine supporting, six negating).

Investigators found a significant association ($p < .001$) between successful dieting and nonsupportive or negating activities of subjects' families, rather than supportive family behaviors. Both supporting and negating activities perceived by subjects from the total group

(including self, friends and co-workers as well as family) were positively associated ($p < .001$) with successful dieting. Nutrition knowledge bore no significant relationship to group support, and only weak positive relationship ($p < .09$) with supportive family activities. Hertzler and Schulman (1983) concluded that dieting success for these women depended more on support from family or outside group - whether negative or positive - than on nutrition knowledge alone. Results also suggested that the immediate family had greater impact on dieting success when outside group support was present.

Others have used questionnaire to assess family support. The MOOS Family Environment Scale (FES) (Moos & Moos, 1976) is a 90-item True-False questionnaire administered to various family members, and which taps three family components - relationship, personal growth and system maintenance. Each of these in turn contains subscales or dimensions of family environment. The concept of support is embodied in the cohesion subscale of the Relationship component, which is defined as "the extent to which family members are concerned and committed to the family and the degree to which they are helpful and supportive to each other" (Moos & Moos, 1976, p. 360). The FES examines cohesion and other dimensions of relationship from the perspective of family members and

thus constitutes an "insider's view" of the family (Hannum & Mayer, 1984).

Kintner et al. (1981) used the Moos FES to explore relationships between FES subscales and food intake of young nuclear families in Wisconsin. Interviewing both husbands and wives, they found high family cohesion to be associated with higher intakes of protein, calcium, iron, Vitamin A and riboflavin in women ($p \leq .05$) and greater milk consumption in men.

One item on a questionnaire designed by Dixon (1982) asked EFNEP homemakers whether their families (a) usually liked, (b) didn't like or (c) refused to try new foods. Such a question is useful in assessing not only an aspect of family support, but effectiveness of the program in expanding EFNEP family menus.

Loris, Dewey and Poirer-Brode (1985) asked pregnant teenagers in California about reactions from the infants' fathers to the pregnancy. They interviewed using five response categories to assess positive versus negative quality of reaction: happy, so-so, angry, sad, not sure. When father's reaction was positive, teen mother's weight gain and infant birthweight were both significantly higher ($p < .05$). Authors acknowledged the importance of teen fathers as a support system with potential for improving teen pregnancy outcome.

Observational techniques have been employed to examine various characteristics of families, including support. One method used in structural family therapy is the Family Task (Minuchin, Rosman & Baker, 1978), a quasi-natural observational technique in which the family is given a task to do, observed and videotaped with permission. This helps the therapist to identify subsystems of two or more people operating within the family, and boundaries existing between both individuals and group subsystems. Four transactional tendencies believed to be conducive to psychosomatic illness in children (Minuchin et al., 1978; Schilson & Valkenburg, 1984) are (a) enmeshment or intense closeness in which appropriate boundaries are lacking, (b) overprotectiveness, (c) rigidity or inflexibility, and (d) unresolved conflict. Part of the therapist's task is to look for alliances or coalitions, i.e., supportive bonds, between family members. In this context, it is not the presence or absence of support which is important, but where it lies within the family, and its consequences. According to Minuchin et al. (1978), support in dysfunctional families is offered in the form of overprotectiveness and nurturance in order to avoid conflict. The Family Task technique of identifying family characteristics is used clinically; it requires

considerable time, plus skill and training in structural family therapy.

Hannum and Mayer (1984) compared the Moos FES with a behavior observation technique in terms of validity, appropriate use and cost. They obtained scores for selected subscales of the FES from true-false responses of 22 families attending a mental health clinic in California. They used a Family Interactional Coding System (FICS) to assess and code a videotaped session of a clinical interactional family task, in terms of behavioral categories which conceptually corresponded with FES subscales. Those categories related to support were direct or indirect statements of agreement versus disagreement and statements of support versus nonsupport; such statements were characterized by liking or caring versus criticism, complaining or nonliking, respectively. Family organization - defined as the extent to which family activities, plans, rules and responsibilities are structured (Moos & Moos, 1976) - was positively related ($p < .05$) to high family agreement behavior. However, few other significant relationships were found. Authors attributed results to small sample size and the differences in nature between self-report and behavioral data, rather than to the validity of either instrument. It is interesting that while nonsupport and disagreement

were distinct categories in the FICS, the two were combined for statistical analysis, suggesting conceptual overlap. This further underscores the challenge of separating and operationally defining variables which address family dynamics.

Other studies using observational methods to study food habits have addressed family support. Chavez et al. (1975) used both questionnaire and observation in a rural Mexican village to assess support in the form of rewards, positive-negative parental attitudes and frequency of childcare (e.g., bathing, diapering, accident prevention) in a longitudinal study of nutritionally supplemented and nonsupplemented infants and toddlers. Waxman and Stunkard (1980) directly observed obese and nonobese male sibling pairs in their homes, and discovered that efforts by obese boys to be more physically active were often discouraged by their parents. They may have become conditioned to be less active in the home environment than their nonobese brothers. Waxman and Stunkard (1980) also noted that all four mothers consistently served much larger portions of food to their obese sons at mealtime. The original intent of the study had been to quantitatively assess mealtime energy consumption, eating rate and physical activity of a small sample; however, their qualitative observations suggested a key role for family support in promoting

certain dietary and exercise patterns early in life.

Family Communication

Definition. Communication can be viewed as "the systematic and patterned exchange of information that creates some level of shared experience and meaning among family members" (Paolucci et al., 1977, p. 149). Satir (1972) emphasized the all-encompassing nature of communication, citing it as the largest single factor in determining nature of interpersonal relationships, life events, and state of health. Communication involves not only sending and receiving information (Johnson, 1984), but also how people use and interpret it (Satir, 1972). The role of communication in social and behavioral change is recognized by many (Anderson & Auslander, 1980; Baranowski et al., 1982; Hertzler & Vaughan, 1979; Johnson, 1984; Paolucci et al., 1977; Satir, 1972; Yarbrough, 1981).

There is overlap evident between operational definitions of communication and the other family variables discussed thus far. Social support as viewed by Baranowski et al. (1982) is actually a form of family communication and thus constitutes part of its definition. This appears logical since support in the family must be communicated among members. Similarly, household rules

and family roles are maintained through specific patterns of communication within the family (Minuchin et al., 1978).

This idea is reflected in the family variable classification scheme of Hertzler and Vaughan (1979). They listed parent-child interaction, shared activities and decision-making dynamics of childrearing as family interaction variables - all of which involve the sharing of information. Their structural family variables included demographics, family organization and status consistency; thus one could argue that it is through interaction or communication that family rules, roles and structure are conveyed and maintained. Further, as others have suggested, all of these variables impact considerably upon health behavior (Baranowski et al., 1982; D'Augelli & Smiciklas-Wright, 1978; Foley et al., 1979; Smiciklas-Wright & D'Augelli, 1978).

Communication is also discussed together with conflict (Paolucci et al., 1977; Satir, 1972) and disagreement (Williams & Berry, 1984) in families; in this context communication involves abilities to freely express feelings and ideas, and to resolve differences. This is not meant to suggest family conflict should be avoided at all cost; rather it is hoped that if and when conflict occurs, it has constructive purpose and can be resolved.

Measures. The use of shared food roles by Hertzler et al. (1986) to assess family food-related communication was discussed previously. In a study which examined iron status of low-income teenage girls in Missouri, Hertzler et al. (1976) also used a questionnaire in checklist format to obtain information on family interaction. A Family Food Activity Score was derived from items addressing food-related activities shared with at least one adult in the family. They derived two Family Structure Scores from items asking from whom teen subjects received reinforcement, with whom they confided and shared similar points of view. Scores One and Two were totals of the numbers of such activities shared with at least one or with two adults, respectively. They assessed iron status using dietary (intake and food frequency) and biochemical (hematocrit) indicators. Negative correlations occurred between dietary and biochemical iron status indicators for girls scoring low on Family Structure Scores. Observing that high scores suggested "a dimension of unity, communication, or stability" in the family unit (Hertzler et al., 1976, p. 98), they concluded that such family dynamics should be studied in relation to outcome of nutrition education programs aimed at teens.

Family communication is incorporated into several areas of the Moos FES. First, the expressiveness subscale

of the Relationship component is defined as "the extent to which family members are allowed and encouraged to act openly and to express their feelings directly" (Moos & Moos, 1976, p. 360). Furthermore, two subscales of the Personal Growth component contain elements of communication and interaction; intellectual-cultural orientation involves how often the family discusses political and social problems, while moral-religious emphasis deals with active discussion of ethical issues and personal values (Moos & Moos, 1976). Kintner et al. (1981) found low protein and calcium scores ($p \leq .05$) in female FES respondents who scored high on the moral-religious emphasis subscale; however women scoring high in intellectual-cultural orientation had better overall diets ($p \leq .001$), while both women and men showed a higher meat group consumption ($p \leq .05$).

Galler and Ramsey's (1985) questionnaire on household microenvironment addressed family communication in its Child Experience and Type of Stimulation component. Questions focused on parent-child interaction. Examples included whether adults had time to spend with children, if relatives visited them, and whether parents read to them.

As stated earlier, the goal-seeking model applied by Coughenour (1972) to the study of family food consumption

contained an integrative activity step which followed from family goal satisfaction; it involved those interactions and activities which served to confirm family identity in terms of food consumption goals. Questions employed as indicators of integrative activity during homemaker interviews included whether they (a) discussed menu and shopping plans with family, (b) taught food shopping principles to family members, (c) bought food that others in the family could help prepare and (d) prepared special meals for celebration or supportive reasons. An implicit assumption in these questions was that the responsibility for family food-related communication rested upon the homemaker. Similar questions asked of other family members might provide a more comprehensive view of family communication patterns which impact on food habits.

Williams and Berry (1984) also used interview to assess family communication in a study examining factors associated with financial disagreement between spouses. Two questions dealing with communication were how often spouses discussed both (a) pleasant and unpleasant events of the day. Couples responded on a five-point frequency scale and a communication score was developed from these two questions alone. Financial disagreement was assessed by questions concerning how money should be spent on a five-point Likert scale from extreme to mild. Infrequent

communication emerged as a strong predictor of spousal financial disagreement for female respondents; other primary areas of disagreement were revealed, including household responsibilities and childrearing, but a causal relationship between variables could not be confirmed.

Observational techniques may be the most accurate and direct way to assess communication patterns within groups and between individuals at a given point in time. The Family Task of Minuchin et al. (1978) enables the family therapist to discover communication patterns which may be related to boundaries, alliances and coalitions between members. Systematic time sampling was employed by Chavez et al. (1975) in observing interaction between supplemented and nonsupplemented rural Mexican children and both parents. Trained observers who were familiarized with families observed parent-child interaction every two to four months over the first two years of the children's lives. They found that children who were better nourished through supplementation with powdered milk, vitamins and minerals (a) grew more, (b) exhibited more demanding behavior and (c) received greater attention from both fathers and mothers. Authors suggested that improved health and activity of supplemented children triggered a feedback system between parent and child which resulted in more complex behavior and more progressive character

development of children, not observed with age-matched controls. In effect, better nutrition helped to create the conditions for a productive interaction in which the behavior of each party modified that of the other. Continued demanding behavior as described above could also promote feeding patterns favorable to the child and thus ensure an ongoing high level of nutritional status.

Joanning et al. (1984) developed and tested a Communication Rapid Assessment Scale (CRAS) which addressed both verbal and nonverbal communication in a three- to five-minute videotaped discussion between any dyad (e.g., parent-child, spouses, dating couple). They used a five-point scale to assess if observed behaviors were conducive or destructive to - or had no influence on - communication. Verbal items were reviewed and edited by university experts in communication theory and with clinical therapy experience; nonverbal items were drawn from communication literature and scores compared with those on the Marital Adjustment Test (MAT) and Bienvenu's Marital Communication Inventory (MCI). Authors reported high interrater reliability (.84 to .96) and moderate test-retest reliability (.65 to .68) for verbal items; reliabilities were similar for the nonverbal component. Moderately high correlations suggested that CRAS measured an aspect of dyadic communication which was distinct from

that measured by MAT or MCI. Yet the instrument proved to be sensitive to behavioral change through the course of several types of clinical counseling interventions also reported. In addition, it was simple and inexpensive to use. Authors conceded that CRAS needed refinement and further testing. While CRAS was designed for clinical use in family therapy, certain of its verbal descriptors (e.g., couple stays with issue, few versus many interruptions) deserve study by nutrition educators desiring to learn more about aspects of family communication which may possibly influence food habits.

Klesges et al. (1983) studied parental impact on child food behavior and weight using a naturalistic observation and behavioral coding system called Bob and Tom's Method of Assessing Nutrition (BATMAN). The technique involved partial interval time sampling, in which parent-child interaction was observed for ten seconds, followed by ten seconds in which observers coded behavior from the previous time segment. Pairs of observers conducted observations of nuclear families with one- to three-year-old children in their homes during the evening meal. Two sessions were conducted for each of 14 families, one month apart. Researchers conducted rigorous observer training throughout the study at one week intervals to ensure and maintain an interrater reliability

of at least .90. They found strong correlation between total parental food prompts (a composite of food offers, presentations, and verbal encouragements to eat) and both child's weight ($r = .81, p < .001$) and time spent by child eating ($r = .66, p < .01$). Overweight children received more verbal encouragements to eat, food offers, and total food prompts (each $p < .05$) by parents, and males were presented with food more frequently than females. While authors cautioned that the sample was small and longitudinal study was needed, they concluded that BATMAN had proved reliable and that parents had significant influence on eating and weight of children.

Klesges, Malott, Boschee and Weber (1986) further documented use of BATMAN in a similar study which examined physical activity, children's eating and weight, and parent-child interaction with 30 children. They measured physical activity in terms of observed intensity level (minimal, moderate, extreme). They quantified both eating behavior and physical activity in relation to parent-child interaction. As in the previous study (Klesges et al, 1983), they found verbal encouragement to be related to child weight ($p < .01$) and time spent eating ($p < .05$). Children who were verbally encouraged to be active tended to exhibit more extreme activity and weigh less ($p < .05$); parents who gave more encouragements to eat tended to give

fewer encouragements to be active ($r = -.65, p < .01$). Authors asserted that further research corroborating these results might warrant application in child obesity treatment programs. Viewed together, both 1983 and 1986 studies suggest both validity and reliability of a naturalistic observation technique in measuring family communication, within the context of child food habits. While such a method with all its rigorous controls would be too time-consuming and impractical in large-scale studies, it might be ideal for screening of families for obesity treatment programs, if predictive relationships could be confirmed between parent-child interaction and weight status of children.

Combining methods of assessing communication can be valuable in nutrition studies, as demonstrated by Leonard, D'Augelli and Smiciklas-Wright (1984). They employed both questionnaire and observation to assess the effectiveness of an obesity prevention program known as Preschool Eating Patterns (PEP); the method employed parents as positive change agents of family diet. They studied 36 program families and 11 controls. Parents responded to a Family Eating and Activity questionnaire which inquired about family eating patterns (e.g., rushed versus relaxed meals, children pressured to finish food). Parents also indicated verbal responses they would choose in ten

hypothetical food situations involving children. Both questionnaires used a five-point frequency response format; high scores suggested health-promoting behaviors and verbal responses, respectively. Finally, actual verbalizations of parents during an audiotaped family evening meal were rated as most versus least encouraging of healthful eating habits. High interrater reliability was established for both verbal measures.

Results were mixed. Score increases occurred for all respondents for family eating behaviors, but with most significant improvement ($p < .01$) occurring in PEP families. Fathers in PEP improved more ($t = 4.53, p < .01$) than mothers ($t = 1.95, p < .10$) in hypothetical verbal response. Considering the higher initial scores for mothers in both PEP and control groups, authors suggested that program fathers had more to gain in this area. While the frequency of negative mealtime verbalizations decreased over time for PEP parents ($t = 3.65, p < .01$), their final scores did not significantly differ from those of control families. While investigators judged the program as having positive short term impact on parental food-related communication, they suggested that its actual success in preventing obesity could best be confirmed through studies which employed direct observation of children, and by longitudinal comparisons between program and control

families. Their study represents a diligent effort to measure family interaction and communication through different means.

Family Stress

Definition. Within the context of families, stress can be viewed as events or conditions occurring in family life which place physical or emotional pressure on any family member, or on the entire unit. This definition borrows from Titelman's (1984) concept of nodal events, which he described as crucial points in family life which could trigger families to become closer, grow more open, or even "fly apart explosively" (Titelman, 1984, p. 74).

Several in the field of nutrition have suggested a contributing role for stress in cases of poor dietary status (Anderson & Auslander, 1980; Hertzler, 1981, 1983b; Hertzler & Vaughan, 1979). Anderson and Auslander (1980) cited evidence that families characterized by low levels of conflict and stress in parent-child relationships were better able to help their children achieve diabetic control. Conversely, (a) parental disagreement regarding treatment and resultant tension, (b) loss of a family member, (c) illness, (d) conflict and (e) perceived helplessness on the part of parents were associated with poor diabetic control for the affected member.

Williams and Berry (1984) postulated that conflict in a single area of family life (i.e., finances) produced stress which could adversely affect outlook on other areas, such as household responsibilities and childcare. This scenario could be expanded to include family food-related activities, and therefore would be of great concern to nutrition educators. No matter how skilled one may be as a teacher, certain stresses on families may produce conditions in which members are completely unreceptive to important health messages - this appears to be a discouraging proposition. However, awareness of such stresses could alert nutritionists to refer families to the appropriate networks for help.

Measures. The Moos FES contains a conflict subscale defined as "the extent to which the open expression of anger and aggression and generally conflictual emotions are characteristic of the family" (Moos & Moos, 1976, p. 360). Kintner et al. (1981) found men in high-conflict families to have poorer diets ($p \leq .05$) as determined by dietary quality index.

Using a questionnaire, Strube and Barbour (1984) reported reasons given by abused women for remaining with or leaving an abusive mate. They found economic hardship and unemployment (both $p < .01$), length of relationship ($p < .05$) and love for partner ($p < .01$) were positively

associated with remaining. These results suggest that the stress of economic independence, combined with commitment to a relationship, is powerful enough to exert influence on decision-making of abused women. Nutrition educators should consider how this might translate into food purchasing and consumption decisions by homemakers and other clients who experience abuse from family members.

Others have used questionnaires to evaluate level of stress in families. One example is the Family Inventory of Life Events and Changes (FILE) developed by McCubbin, Patterson and Wilson (1983). The inventory was designed as a checklist of 71 items (e.g., A parent/spouse died) grouped into nine categories (e.g., Losses). Respondents are asked to indicate if each event or change has taken place in their families, and if so whether it occurred during or prior to the past 12 months.

Steffens (1983) used a similar checklist to study social functioning of 148 low-income families in Kansas. She developed a "Pile Up" Index, created from responses to a Stressful Life Events (SLE) Inventory. Indicating the number of stressful events experienced that year placed families in low, moderate or high ranges of Pile Up. All families in her sample fell into the moderate or high range. Whether or not particular events were considered stressful in the view of the families surveyed was not

addressed.

In extended (Bowenian) family therapy, a multigenerational history interview is often conducted with the aim of generating a family profile or map of the present situation. The concept of nodal events likely to produce anxiety or pressure in families was incorporated as one of five components in the Family Systems Assessment Profile (FSAP) developed by Titelman (1984). He described a full FSAP as one which was obtained longitudinally, and based on interview with the family by a trained clinician. Main nodal events considered to evoke stress included school change, family migration, divorce or separation, remarriage, unemployment, physical change (e.g., puberty, menopause) and death. Such "trigger points" in family life may at first be viewed as inappropriate times in which to introduce new information; however, others (Caple, 1985; J.F. Keller, personal communication, November, 1985) have suggested that families as growing and developing units might actually be more receptive to new information and to change during periods of crisis and stress. This idea is illustrated in such cases where a family member experiences a nonfatal heart attack; suddenly a formerly apathetic family can become very interested in learning about diet and exercises conducive to a healthy heart. To more quickly bring about change in

families, Titelman (1984, p. 77) recommended targeting "higher functioning" family members - particularly those who are seeking to change their own position within the family.

Nichols (1984) reported a study in which Minuchin et al. (1978) combined Family Diagnostic Interview, observation and a biochemical measure to examine stress in the form of family conflict on psychosomatic-type diabetic children. As part of a routine family therapy session, a structural family therapist interviewed parents about family problems, intentionally creating a verbal confrontation between spouses. When children from psychosomatic families observed such conflict between parents from behind a one-way mirror, they became visibly upset. This was accompanied by increases in free fatty acid (FFA) levels in the blood, a biochemical measure which was associated with diabetic ketoacidosis. Children were brought into the room and eventually drawn into the discussion by parents attempting to divert conflict from themselves. This produced a fall in FFA levels of parents, but those of the affected children rose. The biochemical measure provided confirmation of many previous clinical observations that psychosomatic children allowed themselves to serve as stress buffers between their parents. In essence they functioned to preserve the

family "peace," while possibly paying the price of poor diabetic control.

Summary

Five factors have been identified from the literature of nutrition, family development and related fields which are believed to be closely connected with the decisions which families make regarding food selection and consumption (Table 1). Such factors may influence the likelihood of success for many nutrition education programs. This does not imply, however, that most nutrition interventions have neglected family dynamics in their design. On the contrary, several have addressed family issues and even directed program efforts toward all family members. These programs are discussed in the following section.

Family - Oriented Nutrition Education Programs -

Features of Successful Interventions

What follows is a review of selected reports of nutrition education interventions which have targeted more than just one family member, and which are judged based on reported results to be successful. For purposes of this discussion success is defined as having brought about one

or more positive outcomes including significant diet behavior change, increased nutrition knowledge, improved attitudes toward nutrition and health, and lasting benefit or retention of such positive changes.

Features of family-oriented nutrition education interventions are identified in terms of three general domains (Table 2). These are: (a) program goals and philosophy, (b) program design - which includes structure, administration, evaluation and related elements and (c) program content. Family nutrition interventions are considered in three areas of focus - cardiovascular health, weight control (both prevention and treatment programs) and school nutrition education.

Cardiovascular Health

Success of an eight-week cardiovascular disease (CVD) risk reduction program for families in Texas (Baranowski et al., 1982) was discussed in the previous section, in terms of increased dietary and exercise support behaviors of adults in the sample. Nader et al. (1983) later described the Family Health Project (FHP) further and reported specific dietary changes achieved through the program.

FHP operated on the premise that families exert great influence on the health habits of their members. Thus its

Table 2

Summary of Nutrition Education Program Features, Rationale, and Family Factors Addressed

Program Dimension	Feature/Component	Family Factor(s) Addressed	Example(s)	Rationale/Comments
I. Goals and Philosophy	A. Prevention orientation; addresses total health, whole person, lifestyle change.	All factors	Family Health Project (Baranowski et al., 1982; Nader et al., 1983) Preschool Eating Patterns (PEP) Program (Smiciklas-Wright & D'Augelli, 1978; Leonard et al., 1984) Round the Clock Community Nutrition Program (Guarino, et al., 1984) Weight Watchers International (WWI) (Frankie, 1985)	A popular trend and appealing philosophy; good health can enable families to have a better life together. (WWI not preventive but focuses on whole person in treatment.)
	B. Recognizes differing educational needs of families, builds on family strengths to to effect change.	Family Support	Family Health Project PEP Program	Positive view of family is one which assumes that family unit inherently desires to improve itself and has the strengths to do so, if these are identified and mobilized.
	C. Considers household dynamics and interactions; views family as system.	All factors, but family communication especially.	PEP Program	Think before you teach! There could be family dynamics which affect how and if your nutrition message is used by the family.

Table 2 (cont'd)

Program Dimension	Feature/Component	Family Factor(s) Addressed	Example(s)	Rationale/Comments
II. Structure, Design and Administration	A. Methods of Documenting Program Success		Family Health Project Student/Parent Instruction (SPI) (Kirks et al., 1982; Kirks & Hughs, 1986).	A program designed to document success is more accountable to sponsors and clients.
	1. Method built into program (e.g. pre-post measures)		Family Health Program Pittsburgh Childhood Weight Control Program (PCWCP) (Epstein et al., 1986)	
	2. Monitoring of clients by professional program staff.	3. Self-monitoring and evaluation by families.	Family Health Project	Self-monitoring activity can generate health and nutrition-related conversation among family members, as well as mutual reinforcement.
	4. Frequent contact with family during program.	Family Health Project PEP Program PCWCP SPI Round the Clock	Frequent personal contact conducive to reinforcement of principles learned.	Round the Clock employed <u>written</u> contact via newsletter.

Table 2 (cont'd)

Program Dimension	Feature/Component	Family Factor(s) Addressed	Example(s)	Rationale/Comments
II. Structure, Design and Administration (cont'd)	5. Follow up Contact		Mother-Child (M-C) Separately vs. Together (Brownell et al., 1983) - at 1 year PCWCP - at 1 year SPI - at 5 years	
	6. Involvement of all family members	Family Support	PEP Program	Involving all family members removes/lightens burden from a single, targeted individual; good health can become a common goal for <u>all</u> members.
	7. Separate and joint parent-child (P-C) activities.	Family Support	Family Health Program M-C Separately vs Together PCWCP WWI	Including both gives each party needed space and independence and at the same time promotes mutual reinforcement of program principles.
	B. Multidisciplinary			Family Health Project PEP Program PCWCP
	C. Homophily and/or status consistency between instructor and learner.		Expanded Food and Nutrition Education Program (EFNEP) (Johnson, 1984) WWI	Shared background and experience between teacher and learner can overcome barriers common in heterophilous exchange; homophily reduces distance between the parties and can facilitate learning.

Table 2 (cont'd)

Program Dimension	Feature/Component	Family Factor(s) Addressed	Example(s)	Rationale/Comments
III. Content	A. Provides <u>accurate</u> and <u>useful</u> nutrition and health information.	Family Support and communication	Family Health Project M-C Separately vs Together PEP Program PCWCP Round the Clock SPI WWI	Accuracy of information is essential in truly serving clients, and enhances the <u>quality</u> of information communicated within family.
	B. Teaches and/or sharpens:			
	1. Communication Skills	Family Communication	WWI	Health and nutrition knowledge is useless if it cannot be effectively <u>shared</u> and <u>acted upon</u> by families.
	2. Parenting/Child Management Skills	Family Communication Roles/Responsibilities	PCWCP	
	3. Problem Solving Skills	Family Support and Communication	Family Health Project	
	4. Behavior Change Skills	Family Support and Communication	Family Health Project M-C Separately vs Together PEP Program PCWCP WWI	

Table 2 (cont'd)

Program Dimension	Feature/Component	Family Factor(s) Addressed	Example(s)	Rationale/Comments
III. Content (cont'd)	C. Mobilizes family support in effecting and sustaining positive dietary change.	Family Support	Family Health Project M-C Separately vs Together	To sustain behavior changes that educator and family have worked so hard to achieve, family members must be enlisted to encourage and support one another.
	D. Includes exercise/fitness component and reinforce dietary changes.	Family Support and Communication	Family Health Project PEP Program PCWCP	Exercise and nutrition act synergistically in a total health and fitness effort; the exercise factor can "make or break" even the best diet. Physical activities planned together can increase family interaction and communication, and reinforce positive behavior change.

primary goal was to reduce CVD risk through an educational effort which targeted whole families; it encouraged them to initiate lifestyle changes and to support and maintain these for all members, once such changes were established.

Working toward this goal involved planning both joint and separate activities for parents and children. The design and content of eight sessions were developed by a multidisciplinary team of professionals in behavioral science, pediatric medicine, health education, dietetics/nutrition and exercise physiology. Weekly children's sessions were led by a high school role model who directed healthful food choice activities and role play to address peer pressure and food selection away from home. Adult education focused on sharpening problem-solving skills and sharing experiences related to changing health habits. Parents and children participated together in family behavior management sessions which involved open discussion and goal-setting. The overall sequence of each weekly session was as follows: (a) warm-up aerobic activity for 25 minutes, (b) a 15-minute health snack break, (c) separate child and adult education and discussion, 25 minutes and (d) family behavior management.

The program's behavioral approach was reflected in extrinsic rewards provided by the FHP itself (e.g.,

Project T-shirts, patches, movie tickets) and emphasis on longterm intrinsic rewards (i.e., pride, confidence, improved health and family togetherness). A Family Olympics event was held at the end of eight weeks to reinforce effort of project staff and participating families, and to promote and publicize the program.

Dietary change was assessed for both program and control families by pre- and post-intervention estimates of food consumption frequency (about 12 weeks apart) and daily self-monitoring of food intake. The two groups were compared in terms of foods consumed which were high in saturated fat, unsaturated fat, sodium and potassium. Cardiovascular risk knowledge of adults was also assessed using a Stanford test.

Program adults (mostly women) scored significantly higher on cardiovascular risk knowledge ($p < .05$) than did those in the control group. The experimental group (both adults and children) showed marked decreases over controls (no significance levels given) in consumption frequency of five out of 12 categories of high salt foods and three out of 13 categories of high saturated fat foods. A three-way ANOVA applied to the change scores for these food groups revealed a significant treatment effect ($p < .05$), and for high salt foods an ethnicity effect; Mexican Americans showed the greatest decrease ($p < .05$) in consumption of

high sodium foods over black and white Americans. No significant differences were found for unsaturated fat and potassium food groups. Mean frequencies tabulated and graphed for the same four food groups based on daily self-reports showed changes in the desired direction for salt and saturated fat. Duration of the program was too short and the sample too small (78 adults and children from 24 families) to register significant changes in pre-to post-program physiological indicators including weight, blood pressure, serum lipoprotein levels and bicycle ergometer test (Nader et al., 1983). It should be noted that while the FHP described "parent" and "adult" involvement and interaction with children, the majority of the responding sample were women. Perhaps future studies of this program with larger samples will include a greater proportion of men. Such a sample would be more representative of the family as a whole.

Obesity Prevention

D'Augelli and Smiciklas-Wright (1978) reported high correlation between health risk factors of children and their parents and recognized the tremendous impact of families on early development of children's health habits, as rationale for targeting the entire family for nutrition education. In the late 1970's, prevalence of obesity in

Americans was reported as 30%, and the authors listed four components to be included in a sound behavioral program aimed at primary prevention of obesity. These were (a) a self-monitoring system focused on eating behavior, (b) the necessary nutrition information, (c) training of family members in stimulus control and in (d) social reinforcement techniques in order to maintain new habits learned. They described their own Preschool Eating Patterns (PEP) Program (Smiciklas-Wright & D'Augelli, 1978), which employed parents as change agents in family food habits and physical activity. Results of later research on this program were uncertain in terms of successful obesity prevention; however, Leonard et al. (1984) demonstrated positive short-term impact of PEP on parental food-related food related communication with children (see Family Communication).

Begun in 1977 at Penn State, PEP is based on the premise that prevention of overweight must include a behavioral intervention component, and that parents can be employed as change agents in modifying dietary and lifestyle patterns of the entire family, particularly preschool-age children (Smiciklas-Wright & D'Augelli, 1978). Since the program's objective is primary prevention of obesity, its focus is on young children. Tertiary prevention, whereby overweight parents improve as

a result of their own efforts to change the entire family, is a hoped-for fringe benefit.

Four features of FEP are (a) its preventive approach, (b) recognition of the family as a system in which reciprocal (i.e., two-way) influence takes place between parents and children, (c) behavior modification of eating and exercise habits and (d) interdisciplinary cooperation between nutrition educators and behavioral specialists. The five-week program provides participants with guidance in a group setting of three to four families. A nutritionist provides information and helps in goal-setting, while behavioral specialists offer tools for behavioral change toward meeting those goals. A three-component model (A-P-E) is used whereby families (a) ASSESS their current status, (b) PLAN change strategy, and later (c) EVALUATE progress. Thus behavior change plans are adapted to needs of each family. Food selection, eating habits and physical activity are three major areas targeted for change. Creators of the PEP Program (Leonard et al., 1984) expressed hope that longitudinal study involving a control group would demonstrate long term impact in preventing obesity of children in program families.

A strong point of PEP is in its positive approach toward families in general. The program operates on the

implicit assumption that families already have "the right stuff" to effect positive health behavior changes; PEP sets out to mobilize these resources, i.e., to build on family strengths.

Obesity Treatment

Venters and Mullis (1984) recommended that nutrition educators keep in mind both family values and beliefs and patterns of interaction among members in order to achieve effective counseling, particularly in the area of preschool obesity control. They emphasized the need for setting realistic goals and proceeding with small changes over the long term, in dealing with the family belief system. Like Smiciklas-Wright and D'Augelli (1978), they recognized the family as a group of interacting members whose behavior is mutually influenced. They further acknowledged the need for appropriate referral to sources of social support in stress situations which demand problem-solving, communication and coping skills - mechanisms which steer the family away from eating to solve problems. Awareness of family boundaries and receptivity to new information was cited as essential for nutrition educators who wish to plan effective strategies and understand differing educational needs of families seeking help for obese preschoolers. In stressing

appropriate outside referral, the authors implicitly acknowledged the importance of multidisciplinary cooperation and networking, a philosophy also promoted by the PEF Program team.

All this would suggest the need for parent involvement in obesity treatment of children. How should they be involved? Brownell, Kelman and Stunkard (1983) conducted a study to assess both short- and longterm effects of three methods of parent involvement in obesity treatment on the changes in weight and blood pressure of 33 teenage girls and nine boys, averaging 55.7% overweight. Subjects were assigned randomly to one of three 16-week weight loss instruction groups: (a) Mother-Child (M-C) Separately, (b) Mother-Child Together and (c) Child Alone. Weight changes were measured by (a) body weight, (b) percentage overweight, (c) body mass index and (d) developmental index (a weight change ratio adjusted to account for growth).

Analysis of Covariance (ANACOVA) showed the Separate M-C treatment to be superior to the others by all four measures. Percentage overweight for the M-C Separately group decreased by 17.1% at 16 weeks, and after a 12-month follow-up period had decreased further to a net 20.5% loss. M-C Together and Child Alone group weight changes were only -7% and -6.8% by comparison, respectively, and

remained at these levels over a year's time. Older children lost more weight than younger, and heavier children more than lighter ones. Correlational analysis indicated that greatest blood pressure reductions were achieved by children who initially had the highest values - these tended to be those who were also more obese.

Reasons cited for success of M-C Separately obesity treatment were that: (a) training was provided for both obese teens and their mothers, (b) free discussion was promoted, uninhibited by presence of the other party, and (c) teen patients were motivated to take responsibility for following through since they knew their mothers were involved. Authors concluded that the "nature of parent involvement may be as important as its presence or absence" (Brownell et al., 1983), and further attributed success to the behavioral focus of treatment. Sharing feelings about obesity and family experiences in separate peer group settings may also have achieved effectiveness by granting the needed distance or "space" between parent and child, while at the same time promoting the support needed to sustain behavior change resulting from weight loss instruction. Impact of fathers was not addressed in the study.

Epstein, Valoski, Koeski and Wing (1986) focused on obese children in a family-based behavioral weight control

program in Pittsburgh. They examined weight, nutrient intake and linear growth of 17 one- to six-year olds receiving separate but concurrent instruction in weight control with their mothers. (This is analogous to the M-C Separately treatment in the above study.) In the Pittsburgh Childhood Weight Control Program (PCWCP), children were given lessons in diet, walking exercise and behavior management. Instructors employed the "traffic light" system for teaching diet, adapting it for children, and for their parents to use at home for proper food selection. Parents were instructed in the Basic Four Food Groups and also trained in behavior management principles including contracting, modeling and social reinforcement. A parent-child walking activity was assigned for six days per week, and mothers were urged to encourage children in being physically active. The program lasted one year, with an initial ten weekly visits followed by ten monthly meetings. Compared to a mean baseline of 42.1% overweight, children on the average decreased relative body weight to 24% overweight by the end of one year. When follow-up weights were taken at two years from baseline, this had increased only slightly to 27.8%, indicating that maintenance of a loss of at least 14.3% was achieved over two years. Linear growth measured over this this time was normal. Dietary data, based on food

records kept by mothers after training with food models, showed increases in nutrient densities for all nutrients except fat (as expected) and iron, whose intake dropped significantly during the program. Authors suggested increased intake of Vitamin C food sources and iron-fortified cereal products to remedy this problem. They further proposed measuring hematocrits in future studies of this kind, as a biochemical assessment of iron status.

Teaching families skills in communication and behavior change is a theme also found in the Weight Watchers International (WWI) Program as described by Frankle (1985). She emphasized among the features of the program that one must teach skills which develop the whole person in order to truly help individuals take on lifestyle changes necessary for weight control. She recognized the role of family dynamics in perpetuating an overweight condition, particularly in dysfunctional families in which an obese member may unconsciously serve a useful function to the rest of the group by remaining obese. She viewed this as basis for mobilizing family units to confront obesity problems by eliminating self-created obstacles to behavior change.

A noteworthy feature of WWI is that group leaders or instructors must be graduates of the program, to ensure

empathy between teachers and learners. Johnson (1984) described homophilous information exchange as that which occurs between a source and receiver who are similar in culture, language, educational background, or other experience. She distinguished this from dissimilarity or unequal status between two communicating parties, or heterophily. EFNEP was cited as an example of a nutrition education program design in which the homophily between instructors and learners is used to enhance the diffusion of nutrition information to low-income homemakers. This is accomplished through training of paraprofessionals who are familiar with and often indigenous to their assigned target areas. WWI thus operates on a similar principle, since there is likely to be some degree of homophily between an obese client and a formerly obese instructor.

School Nutrition Education

Gillespie (1981) acknowledged the impact of home and family environment on child food habits in a model for evaluating school nutrition education programs. She proposed that community, school and family environment factors combined with children's individual dispositions to influence food habits; therefore, both environmental and dispositional factors were to be considered in planning nutrition interventions which were expected to

bring about changes in children's knowledge and beliefs, behavior, and attitudes related to food.

School settings offer many opportunities for involving families in nutrition education of children. Kirks, Hendricks and Wyse (1982) compared dietary behavior and dietary quality of primary school (K-3) children whose parents received concurrent nutrition education (Student and Parent Instruction or SPI) with that of children in another school receiving instruction with no parent involvement (Student Instruction or SI). Children in a third school not served by the nutrition education program constituted a control group. The four-month SPI intervention included a biweekly newsletter mailed home instructing parents in nutrition topics determined to be of interest to them based on an earlier survey. Teachers in both SPI and SI schools inserviced for 15 hours. All children took pre- and post intervention nutrition knowledge tests; both diversity and quality of diet were assessed by a scoring method based on a post-test only 24-hour food frequency record completed by parents. Diversity was defined as the variety of foods eaten (six food categories were examined). Quality was determined by comparison of food intake with recommended numbers of servings from the Basic Four food groups. Attitude was assessed for only grades 2 and 3 with a 20-item test using

an Agree-Disagree response format.

Three hundred and fifty-two students of a total sample pool of 421 completed both pre- and post- knowledge tests; of these, SPI children scored higher ($p < .05$) than controls in grades K, 1 and 3. Only in grade 1 did SPI students score higher ($p < .05$) than SI students. Sixty-nine second and 99 third graders completed pre- and post- nutrition attitude tests. While both treatment groups scored higher than controls ($p < .05$), no significant difference was found between SI & SPI groups; thus they could not demonstrate impact of concurrent parent instruction in terms of children's nutrition attitudes.

One hundred eleven parents completed food frequency records; results showed impact of parental instruction on both dietary diversity and quality. The SPI group scored higher than SI ($p < .05$); in turn, both SPI and SI children had better dietary variety and quality than controls ($p < .05$). While the number of vegetable servings consumed was significantly higher for both treatment groups, instruments detected no differences in any single food group as a function of parental instruction. They concluded that where the latter made a real difference was in promoting a more varied menu for family members.

The findings of Kirks et al. (1982) suggest that a family approach as conducted here was effective in

achieving actual dietary behavior change. Possible bias in parental reporting must certainly be acknowledged, but results of ANACOVA and multiple comparison suggested that parent involvement made a difference. To confirm these results over the long term, Kirks and Hughs (1986) reported follow-up dietary data on the same sample of families, five years later, whose children were now ten to 14 years old. They mailed the same food frequency forms used in the first study to 275 of the original 352 families; 151 parents completed these in consultation with their children. Dietary diversity, dietary quality and food group consumption were examined as before. ANOVA was employed along with multiple comparison to identify group differences between SPI, SI and controls.

Results suggested longterm benefit had occurred from concurrent parent instruction; the SPI group scored significantly higher ($p < .01$) for dietary quality than SI or control. While they found no significant differences for dietary diversity this time, they noted significantly higher intakes of foods from vegetable, milk (both $p < .01$) and cereal ($p < .05$) groups by SPI children over both SI children and controls. Meat and juice intakes approached significance in the same direction. These findings held even when considering growth of children and general increased caloric intake with age.

Results of both original and follow-up studies of concurrent parent instruction indicate success was achieved in the area of dietary behavior change. A notable feature of the intervention was its sound statistical documentation and follow-up procedure. In effect, long term evaluation was built into the design. Another strong point was the frequent contact with parents through the program's biweekly newsletter; while this was less personal than one-to-one contact, the method was likely to be more time- and cost-efficient than group meetings for the large sample involved.

Guarino, Wittsten and Gallo (1984) reported a pilot project in which nutrition educators and public health officials joined with two school systems in New Jersey to test the Round-the-Clock Community Nutrition Program in grades K - 3. The program aimed at reducing intake of sugar, salt and fat in early years to establish habits for life, and it involved parents in the effort. Nurses in one school and teachers in the other were given two hours of inservice training; parents were briefed at a PTA meeting and were sent newsletters periodically to reinforce the nutrition curriculum material covered in classes with their children. The team enlisted support from local cable TV, newspaper and supermarkets to publicize the program. Of 1256 families involved, 52%

returned evaluations. Seventy percent indicated benefits from the project and that they were considering changes in food habits; over half of the remaining 30% stated they were already knowledgeable in nutrition. Fifty-seven percent of teacher evaluation comments were positive, 17% were neutral and 29% negative. Most of the latter respondents chose anonymity, which precluded follow-up and suggested some teacher resistance. Major obstacles realized in this area were (a) crowded class time schedule, and (b) limited teacher background and confidence in nutrition subject area coupled with (c) lack of optimism about their ability to influence dietary change in students.

Authors learned much from this study which they incorporated into subsequent program revision to make Round-the-Clock more effective and better received. They faced a human resource issue in regard to program implementation; their report suggests that imposing a program or educational component, without considering existing time commitments of those who conduct the "leg work" (i.e., classroom teachers), can place even the best school nutrition education intervention at risk for failure. Generous time must be allotted for inservice training, for purposes of (a) increasing teacher confidence and competence in nutrition subject matter and

(b) planning realistic timetables so as not to belittle the importance of non-nutrition areas of students' curriculum.

An impressive feature of Round-the-Clock was the coordination of parent newsletter topics with classroom nutrition curriculum; this appeared to both reinforce learning and generate family support for principles learned. Involving the school and family with the entire community through local media and marketplace suggests acknowledgement of a multiple-environmental influence of family, school and community - this was recognized by Gillespie (1981) and incorporated into her school nutrition education model.

Several programs discussed above have targeted the entire family. Others have focused on education or treatment of certain family members - usually children- by involving parents and/or others in the family. All interventions have been family-oriented to some degree. But what of reaching adult family members through the influence of children?

Dewey et al. (1984) cited the special situation of migrant Mexican-American families as one in which bilingual children were introducing many of the dietary changes described by parents since moving to the United States. Seventy-one percent of 40 families interviewed in

a pilot study in California viewed their diets as having improved in both quality and variety. Changes included increases in both canned and frozen fruits and vegetables; consumption of certain traditional food such as tortillas and beans had been retained. Areas in need of improvement were suggested by moderate to high consumption of sweets and soft drinks, and little familiarity with lowfat milk products.

Dewey, Strode and Fitch (1984) more closely examined both (a) dietary acculturation of migrant Mexican-American preschoolers and (b) the influence of bilingual children on their families in California. They included traditional (Mexican), new (processed) and basic foods (proteins, grains, dairy products, fruits and vegetables) in the analysis, and employed a control group of nonmigrant Mexican-Americans to allow comparison based on difference in degree of contact with Mexico. Trained bilingual interviewers visited families in their homes and collected information regarding adult dietary changes, current preschooler food intake, family food practices, and English-speaking proficiency. While female household heads were addressed, other family members provided response input in many cases.

Results confirmed parents' perceived overall dietary improvement since moving to the U.S., also found in the

pilot study. Habits of migrant and nonmigrant children were similar, with adequate protein, grain, dairy and fruit but low vegetable intake. Overall, adults reported consumption of basic food groups since leaving Mexico to have increased or stayed the same, traditional foods to have decreased or not changed, and new foods to have increased or not to be consumed at all. Migrant/nonmigrant status correlated ($p < .01$) with increased consumption of both processed and basic foods, with greater increases found among nonmigrant families. English-speaking ability of children correlated positively ($p < .005$) with increased new food consumption. Responses to questions concerning food practices revealed considerable reliance on bilingual children in the market site for aid in reading product labels and in making food purchasing decisions.

Results of these studies suggest that within the unique context of immigrant families in the U.S., bilingual children may serve as actual change agents in the diets of their families via their influence on non-English-speaking parents. This contrasts with the concept of parents as primary change agents of children's diets (Baranowski et al., 1982; Nader et al., 1983). According to Dewey et al (1984), immigrant Mexican children often learn English sooner than their parents;

perhaps this places them in a more influential position than children in nonimmigrant families - one which provides preschool and elementary school nutrition educators of migrant children an opportunity to more effectively reach whole families.

Summary

Several features emerge from this discussion which characterize family-oriented nutrition programs (Table 2). Many were characterized by both preventive and multidisciplinary philosophies; in some the focus was on development of a family member, and on encouraging whole lifestyle changes which promote total health. Such programs involved not only diet counseling, but also those elements aimed to reinforce it. Programs tended to recognize differing educational needs of families, build on existing family support systems to effect change, and consider household communication dynamics and interactions.

Program designers often included a method of documenting program effectiveness from its beginning; methods included (a) monitoring of clients by professionals (b) self-monitoring and evaluation by family members, (c) frequent personal and/or written contact with families during intervention and (d) follow-up contact and

evaluation. While programs sought to involve as many family members as possible, in many cases the primary participants were female household heads and children, still leaving paternal influence relatively unexplored. Several interventions required or promoted interaction of all family members through joint and/or separate parent and child nutrition and exercise activities. Overall, the design of family-oriented programs - particularly those involving self-monitoring and joint activities - promoted family support.

In general, program content reflected the preventive and multidisciplinary approaches of those who conducted them. Programs provided accurate and useful nutrition information, sometimes including referral to other community health resources and support groups. Several taught or sharpened families' existing skills in communication, parenting and child management, problem-solving with regard to food habits, and behavior change. Many included an exercise/fitness component to enhance and reinforce dietary changes, and most employed families themselves in supporting one another in effecting and sustaining positive lifestyle changes. For the educator to mobilize existing family support networks and to help improve communication channels within families implies a positive view of the family unit, and confidence

in its inherent strength and ability to change.

Future_____Directions. The traditional summary-impression method of literature review has been employed in identifying and classifying characteristics of family-oriented nutrition education programs. Hopefully this has laid groundwork for a future, more in-depth review on the topic. One which employs meta-analysis - a sophisticated, quantitative technique which involves extensive literature review (A meta-analysis, 1985), could be especially useful in corroborating the present review or more clearly identifying those features responsible for program success.

A classification scheme for features has been suggested and questions raised to stimulate further research and closer examination of nutrition education programs which direct their efforts toward entire families. Based on this review, four specific research needs are proposed. First, more studies are needed which include control groups to determine that significant dietary changes are results of the program and not some intervening variable. Second, time- and cost-efficient methods should be developed which measure food intake of two or more family members at a time, instead of relying on the intake of one family member to represent that of the entire unit. Methods employed could be interview,

self-report, or some combination. Along the same lines, reliable ways to corroborate or cross-check self-report data are needed. Finally, greater involvement of male family heads in new and existing family-oriented interventions is necessary if such programs are to document the dietary improvement of all family members.

Selected_EFNEP_Evaluations

EFNEP evaluation studies have varied in design and focus, but most have aimed at demonstrating improved dietary practices of homemakers over the course of their participation in EFNEP, and retention of improvement over time. Homemakers are often interviewed regarding satisfaction with the program in these studies. EFNEP evaluation studies which have examined possible relationships between family factors and dietary change are more difficult to find. The studies presented in this section are reviewed in terms of dietary findings (i.e., improvement-retention), homemaker assessment of the program, and family-related findings where applicable.

California

Block, Del Tredici and Omelich (1985) employed a true experimental procedure to determine nutrition knowledge

gains and dietary improvement of homemakers as a result of EFNEP instruction. Paraprofessional Nutrition Education Assistants (NEAs) who were trained for the study recruited subjects in 15 counties, and randomly assigned them to a treatment or control group. Subjects in the treatment group (n = 355) received EFNEP instruction. Control subjects (n = 328) were EFNEP-eligible families held on the waiting list for six months while data were collected on the EFNEP group. Controls received Extension articles not dealing with nutrition and were given EFNEP instruction after six months of placebo education and completion of the posttest.

The investigators measured dietary intake with 24-hour food recall and nutrition knowledge via questionnaire at zero months and at six months (program completion). Food recalls were scored on a scale of zero to 100. In a separate study, seventy-three of the treatment group were contacted two to three years after leaving the program to study retention of dietary improvement (Joy et al., 1987).

Significant dietary improvement ($p < .0001$) in the treatment group was evident in average increases from program entry to exit observed for servings of milk, fruits/vegetables, and total Diet Score (Block et al., 1985). No significant increases were observed for the

control group, whose average entry Diet Scores and food group servings were not significantly different from those of the treatment group. Results from follow-up interviews showed that improvements in Diet Score and consumption of milk products and fruits/vegetables were retained by 73 homemakers up to three years later (Joy et al., 1987). Path analysis revealed that number of EFNEP visits to clients accounted for most of the improvements observed; participants improved more with a greater number of visits received. Exit interviews indicated that participants judged their learning experience to be positive; 87% of the treatment group stated they had either learned "A lot" or "Something" from the program (Block et al., 1985). Two family factors - presence of father and family size as measured by number of children in the household - were subjected to multiple regression analysis; neither were found to be predictive of the Exit Diet Score (Block et al., 1985).

Maryland

Two extension specialists (Amstutz, 1982; Amstutz & Dixon, 1986; Dixon, 1982) showed the Maryland EFNEP to be effective in both initially improving diets of participants, and sustaining positive dietary changes. In a partially-controlled study (Amstutz & Dixon, 1986), they

compared 24-hour recalls of randomly-selected EFNEP graduates (n=129) with those of 194 newly-enrolled homemakers. While initial, final and follow-up recalls were done for the treatment group, data for new enrollees were limited to entry point. The investigators scored food recalls using the method of Block et al. (1985); t-tests were conducted for analysis between treatment and comparison groups, and within the treatment group over time.

No significant difference in average diet score was observed between treatment and comparison groups at program entry. After participating in EFNEP for an average of 31.2 months, the 129 graduated homemakers achieved significant dietary improvement in the program; this was evident in an increase in average Diet Score, average servings of milk products, fruits/vegetables, and breads/cereals. Despite slight but significant ($t = 3.38$, $p \leq .01$) regression after graduation from EFNEP, the average follow-up Diet Score for the same 129 homemakers, after an average of 20.8 months out of the program, remained significantly improved ($t = -8.31$, $p \leq .01$) over the initial score.

Demographic family variables including presence of adult male and size of household were examined with respect to dietary improvement; however, multiple

regression analysis showed that no demographic variables were significantly correlated with dietary improvement.

Kentucky

Santopolo and co-workers (not dated) conducted a pilot project in central Kentucky in the early 1970s which focused less on actual dietary improvement and more on decision-making patterns in families who were participating in EFNEP for the first time. From a random sample of 113 families with differing racial backgrounds in both urban and rural regions, forty-three husbands of married clients in the sample also took part in the study. Project staff interviewed EFNEP aides and male heads of households, and homemakers were interviewed by personnel who were hired and trained for the study. Investigators were interested in the impact of the husband on food-related decisions, as this was believed to influence acceptance and application of EFNEP messages and application of nutrition principles learned.

Homemakers, according to interview results, viewed EFNEP aides as "friends or helpers" (Santopolo et al., p.7), and looked forward to their visits; this suggested good rapport between aides and families. While actual knowledge gains were not documented, most homemakers reported that they were becoming familiar with certain

food and nutrition concepts though EFNEP. Their husbands, however, were in most cases uncertain as to the purpose and content of EFNEP visits. Based on these observations, wives appeared to share little information with their husbands in regard to their program experience.

Considerable impact of husbands on food-related decisions was evident from interview reports of both men and women; homemakers reported that household finances were generally controlled by husbands, and that husbands also influenced food purchasing decisions. Degree of male spouse influence on family decisions tended to be greater in rural and white rather than urban and black families. Over half of the husbands interviewed reported they had input into food buying decisions and primary responsibility for money; this was more commonly stated by rural men.

As a group, husbands corroborated homemaker interview results; however, since reports between husband-wife pairs did not always agree, authors emphasized the importance of interviewing both parties to more accurately determine decision-making roles. They suggested, in light of the predominance of many husbands in making food-related decisions, that nutrition information be given directly to husbands as well as their spouses. This was supported by requests from several men for such information.

Oklahoma

Jordan (1985) studied the dietary intake of 121 EFNEP homemakers in Oklahoma using 24-hour food recall and employing the same scoring method as Block et al. (1985). Diet Scores were compared from program enrollment to completion (18 - 24 months) to assess dietary improvement, and follow-up home interviews with homemakers six to 36 months after graduation were conducted to determine the extent of improvement retention. ANOVA was employed to compare demographic variables including age of homemaker and number of children in the family with Diet Scores. Average score increases were significant ($t = 11.6$, $p < .0001$) from program beginning to completion, and from beginning to follow-up, with no regression from completion to follow-up. Neither homemaker age nor number of children in family were significantly associated with Diet Scores at program beginning, completion, or follow-up.

Virginia

Neilan (1985) reported on the effect of Virginia EFNEP Innovative Projects program on dietary adequacy of homemakers in selected Virginia EFNEP units. The objective of the program was to develop innovative ways to teach nutrition information to EFNEP clientele in small group settings. Small grants were awarded to fund each

unit selected. The food and nutrition topics covered were developed by EFNEP technicians; examples were group shopping tours, a demonstration garden, and a Nutrition Jeopardy Game. Technicians conducted 24-hour food recalls at the beginning and end of each project, and assessed diets on the basis of daily recommended servings (2-2-4-4) from each of the Basic Four food groups.

Homemakers increased their average consumption of vegetables and fruits (24%), breads and cereals (15%), meats (13%), and milk products (9%). Written observations of technicians suggested that both they and their clients benefitted from the Innovative Projects. Some technicians encountered difficulty in obtaining food recalls in group settings. The study laid groundwork for increasing communication networks between human service organizations in local areas, and between the EFNEP families themselves. Suggestions from technicians for future programming included greater involvement of homemakers' husbands, improved transportation arrangements for rural areas, babysitting services for homemakers during group EFNEP sessions, and follow-up plans for absentee homemakers who fell behind. Neilan indicated the need for a longer-term evaluation to confirm results of the study.

Methodology

Sample Selection and Description

Three urban EFNEP units (Lynchburg, Petersburg and Richmond) and three rural units (Brunswick, Nottoway and Pittsylvania counties) were chosen for the study due to their proximity of location. Homemakers in the units were from both urban and southern rural piedmont Virginia, respectively (see map, Appendix 2). EFNEP units in Chesapeake, Hampton, Newport News and Norfolk were not included in the present study due to their large military populations. The Arlington EFNEP unit was also excluded because of a high proportion of Asian clients. These two groups were believed to have characteristics and needs unique from the present sample which warrant separate evaluation.

Technicians from the six units were instructed to pull entry and exit Family Record/Food Recall Forms (see Appendix 1) for homemakers who had entered the program and graduated between October 1984 and September 1985.

In order for each technician to interview at least ten homemakers, 11 were randomly selected for interview using the last family as a substitute in case one of the ten could not be contacted. (If technicians were able to reach all ten and had time to interview the eleventh, they

proceeded to do so.) Random selection involved selecting every third homemaker from the family record files. If technicians had ten families or less, all were included in the sample. Twenty-two technicians from the six units yielded an initial sample of 230.

Homemakers in the study sample were from both single- and two-parent low-income households; all were female. Seventy percent had enrolled between April and September of 1984 and graduated from the program six to 12 months later; twenty percent, mostly from the Petersburg unit, enrolled in 1983 or before and participated for 18 months. The remainder had enrolled in 1985 and participated for six months to a year. Since data collection took place in April 1987, follow-up evaluation represented a time period of six to 36 months following graduation. A total of 224 homemakers comprised the study sample - approximately half from urban (120) and half from rural (104) units.

During the 1984-85 reporting period (Virginia EFNEP, 1985) 2494 families participated in EFNEP in the six units studied. Of these, 923 (37%) were graduated, 200 (8%) had terminated before completing the program, and 1371 (55%) were still actively participating in EFNEP. The 923 graduated homemakers constituted 24% of all graduated homemakers statewide, and 11% of the total graduated and

continuing EFNEP population excluding those who had terminated.

Data Collection

After selecting the homemaker sample, technicians were briefed on study objectives and procedure (Figure 1) and questionnaires (Appendices 3 and 4) were reviewed. Original technicians, or those who had worked with sample homemakers during their program participation, completed Family Background Questionnaires (Appendix 3) for each homemaker they had selected, because they were presumed to be familiar with the family background of their former clients.

Technicians were given two weeks to conduct follow-up interviews, to obtain written informed consent (Appendix 5) and 24-hour food recalls from homemakers. Technicians were instructed to administer the Homemaker Questionnaire (Appendix 4) in an interview fashion in order to assure completion of the survey and to spare any possible embarrassment for those homemakers who could not read. Homemakers who expressed preference to complete the survey themselves were permitted to do so during the visit; however, no questionnaires were to be left in the homes.

Of the 230 sampled, six were excluded due to mis-matching of pre-, post- or follow-up food recalls or

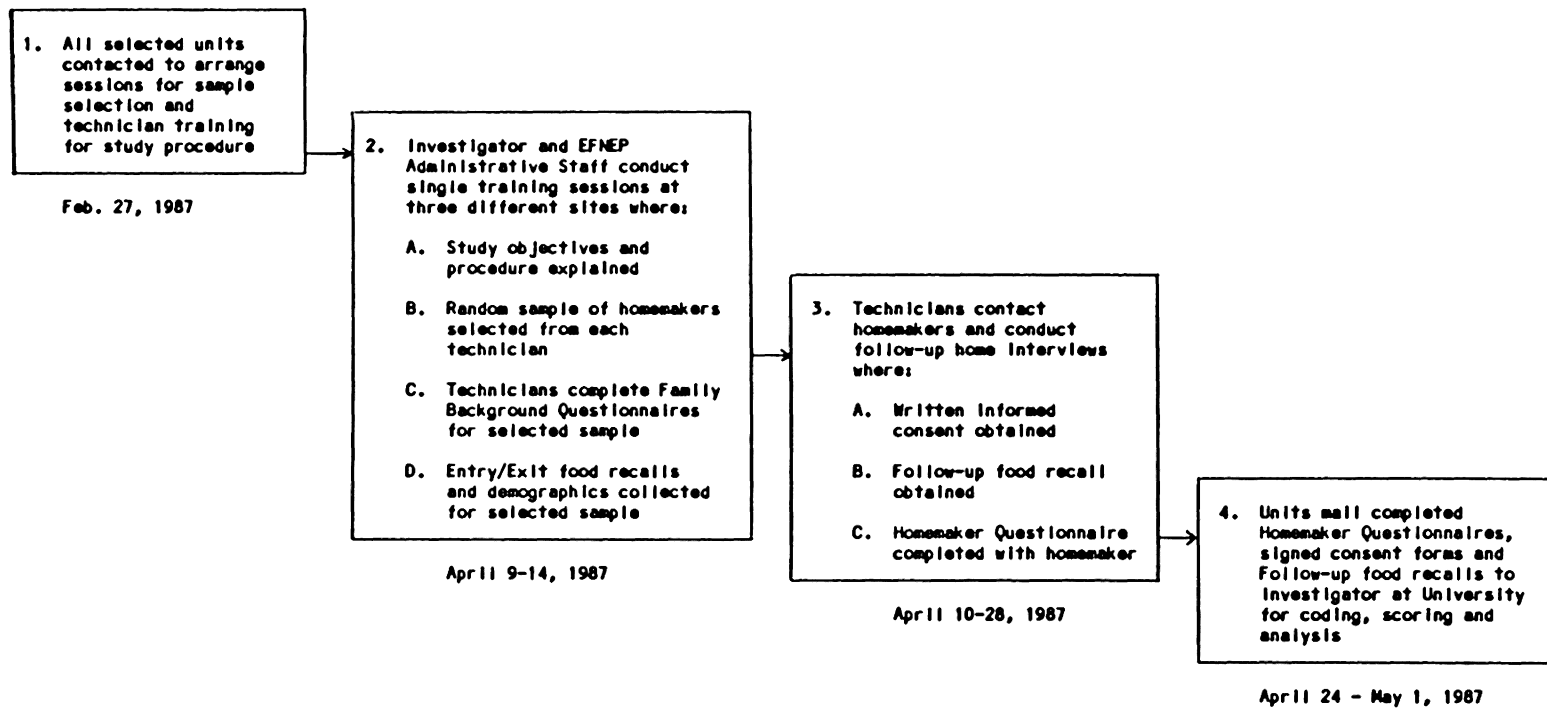


Figure 1. Summary of study procedure.

incomplete Family Record data; this left 224 families for whom pre-and post-EFNEP dietary data and family background data were available. Since 44 of the 224 homemakers could not be found or refused to participate, Homemaker Questionnaire data were only available for 180.

Description of Data

Three basic types of data were collected: (a) dietary data, (b) program data, and (c) family data (Table 3). Evaluation instruments designed for the study were pilot tested in the Roanoke City EFNEP; survey questions were carefully reviewed by the state EFNEP coordinator and university faculty for clarity and content validity.

Dietary data. Dietary intake data were collected directly from the homemaker as the primary data source; it was assumed that if the homemaker's diet improved, so would that of other family members. Food intake was assessed by a 24-hour food recall, using the Synectics Corporation method of scoring (Block et al., 1985) (see Appendix 5). A quick and simple technique described by Guthrie and Scheer (1981) assigned an equal weight of four points to each of the four food groups, resulting in a total possible score of 16. The Synectics method (Appendix 5), equally simple, assigns a score of zero to 100 to a given four food group pattern, e.g., a 2-2-4-4

Table 3

Summary of Variables Addressed, Measures, and Data Collection Instruments

Variable/Measure	Instruments and Scores Used	Measure Description
I. Dietary Data		
A. Dietary Improvement*	Exit Diet Score minus Entry Diet Score	Difference between Diet Scores from pre- to post-program levels
B. Retention (or Regression) of Dietary Improvement*	Follow-up Diet Score minus Exit Diet Score	Difference between Diet Scores from post-program level to follow-up period.
C. Overall Dietary Improvement*	Follow-up Diet Score minus Entry Diet Score	Net difference between Diet Scores from pre-program levels to follow-up period.
II. Program Data		
A. Homemaker Perceived Educational Gain	Homemaker Questionnaire Items 1-8; Educational Gain Score*	Sum of response values for 8 items on a 4-point scale for a possible 32 points.
B. Homemaker Perceived Program Benefit	Homemaker Questionnaire Items 9-20; Program Benefit Score*	Sum of response values for 12 items on a 4-point scale for a possible 48 points.
III. Homemaker/Family Data		
A. Family Composition	Family Record Form;* Family Background Questionnaire, Items 1-11**	Descriptive family demographic items.
B. Family Resource Assistance	Family Record Form,* Resource Assistance Score*	Sum of 4 one-point items for a possible 4 points. Last point divided into eighths.
C. Household Roles/Responsibilities	Family Background Questionnaire, Items 16-26; Household Role/Responsibility Score**	Sum of 9 of 11 items at 1 point each for a possible 9 points.
D. Family Support	Family Background Questionnaire, Items 12-14** Homemaker Questionnaire Items 21-29; Family Support Score*	4 items; no score. Sum of response values for 7 of 9 items on a 4-point scale for a possible 28 points.
E. Family Diet Control	Homemaker Questionnaire Items 30-34; Dietary Influence Score*	Sum of response values for 5 items on a 3-point scale for a possible 15 points.

* Primary data source (homemaker)

** Secondary data source (technician)

pattern earns a Diet Score of 100, while a 1-1-1-1 pattern earns only 42 points. It was chosen for the present study for comparability with recent EFNEP evaluations in California (Block et al., 1985), Maryland (Amstutz & Dixon, 1986) and Oklahoma (Jordan, 1985) employing the same method.

Two problems with using either of the above scoring methods of the Basic Four food groups are: (a) servings consumed beyond the recommended 2-2-4-4 pattern are not reflected in the score, and (b) the score derived does not take into account servings from the fifth food group (fats, sweets and other nutrient-sparse items).

One limitation inherent in the use of 24-hour recalls is the risk of atypical or nonrepresentative food intake for a given day. The recall method is reliable when the sample is large enough (e.g., greater than 50) to "smooth out" distortion created by atypical individual data (Karvetti & Knuts, 1985; Madden, Goodman & Guthrie, 1976).

Three food recalls were scored for each homemaker - those taken at program Entry (zero months), graduation or Exit (six to 18 months), and Follow-up in April 1987 (six to 36 months later). The three Diet Scores were used to measure Dietary Improvement, Retention of Dietary Improvement after graduation, and Overall Dietary

Improvement from program Entry to Follow-up. These were compared with demographic, program and family variables in the study (Table 3).

While Diet Scores served as indices of general dietary adequacy, the actual numbers of servings consumed by homemakers from each of the four food groups - milk, meat, fruit-vegetable, and bread-cereal - were also examined for initial and longterm change.

Program data. Two components of program data were (a) Perceived Educational Gain and (b) Perceived Program Benefits of homemakers. Perceived Educational Gain referred to how much homemakers felt they had learned about reasons for choosing the right foods, which foods were in each of the basic four food groups, which foods to limit, getting better food buys, feeding baby or children, new ways to prepare food, safe food storage, and finding other food resources (see items 1 - 8 on Homemaker Questionnaire - Appendix 4). Each item was rated on a four-point scale in which possible response values were: Didn't learn anything = 1, Learned some things = 2, Learned many things = 3, or Learned an enormous amount = 4. High intercorrelations among the eight items permitted an Educational Gain Score to be derived which was determined by summing response values for the items for a high possible score of 32.

Perceived Program Benefit was defined as the degree to which homemakers believed they and their families had actually changed behavior or experienced positive change as a result of EFNEP participation. Twelve items corresponding to Educational Gain areas were assessed: consumption of junk food and frequency of illness, daily consumption of both fruits/vegetables and of milk, variety in family menu and willingness of family to try new foods, finding food specials and bargains, stretching food money further, and help in reading labels, feeding baby, safe food storage, and finding other food resources (items 9 - 20 on Homemaker Questionnaire). Homemakers responded to these items on a four-point scale. Possible ratings were whether the program: Didn't help at all = 1, Helped a little = 2, Helped very much = 3, or Helped an enormous amount = 4. High correlations among items permitted creation of a Program Benefit Score, which was the sum of response values for the 12 items for a possible score of 48.

Since items in the Educational Gain and Program Benefit Scores were intended to correspond, they were compared with one another to assess response consistency of homemakers; the scores were compared with Dietary Improvement/Retention and other study measures.

Four-point scales were chosen in order to provide a reasonable response spread; pilot study results had shown a three-point response format to be inadequate, prompting the addition of one more scale point (i.e., program helped or homemaker learned an enormous amount) to better differentiate highly positive from moderately positive ratings.

Family__data. Five categories of family data were examined: (a) Family Composition, (b) Family Resource Assistance, (c) Household Roles and Responsibilities, (d) Family Support, and (e) Family Diet Control. Family measures in this study were compared with Dietary Improvement/Retention and with other study measures. Family communication and stress were not studied since the questions designed for their assessment were viewed as too sensitive in nature for EFNEP homemakers; technicians expressed concern about preserving the trust they had developed with their clients.

Family_Composition (items 1 - 11 on Family Background Questionnaire, Appendix 3) was defined by the combination of family members who make up a unit residing within the same household in terms of number and ages of children, homemaker's age, and family type (i.e., single-parent, two-parent or extended by related or unrelated adults) (Hertzler & Owen, 1984). Families were considered as

two-parent as long as an adult male partner was present. Certain family configurations have been shown to be related to food habits and dietary adequacy of family members (Hertzler & Vaughan, 1979).

Family Resource Assistance was defined as degree to which family accessed food-related resource programs in the community. Intercorrelations between Food Stamp Program, WIC and public assistance participation (Family Record Form A - Appendix 1) were statistically significant, but negatively associated with monthly income. Therefore, a Resource Assistance Score was derived by combining all four items and reversing response values for income so that high scores represented greater resource assistance. The highest possible score was 4; the first three points were obtained by awarding a point for participation in any of the three programs. The final point value was distributed over eight income levels listed on the Family Record Form. Those earning the lowest possible level (under \$315/month) scored a full point; this value decreased by one-eighth for each level higher so that those earning the highest income level (\$918 and over) earned only an eighth of a point.

Household Roles and Responsibilities (items 16 - 26 on Family Background Questionnaire - Appendix 3), defined as household tasks performed by family members, were

assessed indirectly by asking technicians to indicate which member was most responsible for each of 11 household tasks. These included food-related functions such as purchasing and preparation of food, deciding what foods to buy and how to handle food money - along with earning money, obtaining other resources such as food stamps, making financial and other household decisions, taking care of children, doing housework and home repair/maintenance.

A Household Role/Responsibility Score was created by awarding one point for each time the homemaker was the family member indicated as responsible for the task. Earning money (item 20) and home repair/maintenance (item 26), items not significantly intercorrelated with others, were not included in the score. This left nine items and a possible score of 9.

Degree to which the homemaker had primary responsibility for household tasks and decisions was viewed as an indirect measure of her managerial authority for food-related resources and decisions, which was believed to influence the food habits of family members (Hertzler & Vaughan, 1979; Piwoz & Viteri, 1985; Yetley, Yetley & Aguirre, 1981).

Family_Support (three sets of items on the Homemaker Questionnaire) was defined as social reinforcement from

the family unit to encourage homemaker involvement in EFNEP. Support from the family in general (three items, 21 - 23) was measured by homemaker responses on a four-point scale to how she perceived her family reacted when she spent money on foods promoted by EFNEP, prepared an EFNEP recipe, and talked to the family about what to eat for lunch or dinner. Possible family reactions were to: Refuse or disagree = 1, Give no opinion = 2, Agree = 3, or Praise/give compliment = 4. In addition, homemakers indicated whether their families criticized, gave no opinion, said good things about, or praised the EFNEP program when talking with family members, friends, relatives or neighbors on a similar four-point scale (two items, 24 - 25). Support for homemaker involvement in EFNEP from spouse/partner, from children 13 years and older, from younger children, and from other adults in household (four items, 26 - 29) were assessed by homemaker ratings for each, in which possible responses were: Object to involvement = 1, Neutral = 2, Generally support = 3, or Strongly support and encourage involvement = 4.

Of the nine Family Support items, significant intercorrelations occurred among all except for two - support from spouse/partner (item 26) and from other adults (item 29). Therefore, a Family Support Score was derived by summing response values for the remaining seven

items, giving a possible score of 28. Technician ratings of support from homemaker family members (items 12 to 14 on Family Background Questionnaire) were not used because intercorrelations for these items were not high enough for a meaningful score to be derived.

Family support has been suggested as a key influence of health and dietary changes in family members (Anderson & Auslander, 1980; Baranowski, Nader, Dunn & Vanderpool, 1982; Frankle, 1985; Hertzler & Schulman, 1983).

Family Diet Control (items 30 - 34 on Homemaker Questionnaire) was defined as the degree to which the homemaker felt she had command over the food habits of other family members. The five True-False statements were adapted from similar ones used in other EFNEP evaluations (Block et al., 1985; Fleming & Splett, 1985). Possible responses were: Very true for my family = 1, Sometimes true for my family = 2, or Not true for my family = 3. The first two items stated that children and spouse/partner ate what they wanted regardless of the homemaker's opinion, so that "Not true" responses indicated more Family Diet Control. In contrast, responses of "Very true" to the last three items indicated that the family ate what the homemaker recommended, that the homemaker assumed responsibility for improving family diet, and that he/she actually felt able to make changes

in family eating habits. High intercorrelations between items resulted in a Family Diet Control Score by summing response values for the five items, giving a possible score of 15. Values for the last three items in the questionnaire were reversed so that higher values for all items were associated with greater Family Diet Control.

Data Analysis

Coding and scoring. Completed surveys were coded (Appendix 6) and computer analyzed using the Statistical Analysis System (SAS, 1985). Food recalls were scored by hand; the Diet Scores obtained for each homemaker, along with actual numbers of servings from each of the four food groups, were entered on computer files along with other survey data. Pearson Product Moment correlations were performed among all survey items to study relationships among survey items and among scores. Response values of highly intercorrelated groups of items were summed to create scores for program and family measures.

Statistical tests. Since Diet Scores were repeated assessments on the same individuals, homemakers served as their own controls. Correlated t-tests were performed to compare Entry, Exit, and Follow-up Diet Scores. Average numbers of actual servings consumed for each food group were also compared in this way.

One-way analysis of variance (ANOVA) and Duncan's multiple range tests were used to compare Entry to Exit Diet Score differences with numbers of actual servings from food groups consumed at program Entry, to confirm whether homemakers with smaller initial numbers of servings from those groups made the greatest Diet Score gains.

Correlation analysis was employed to compare time periods between entry and exit and between graduation and follow-up interview with Dietary Improvement/Retention. Correlation analysis was also used to investigate significant ($r \geq .30$, $p < .0001$) relationships between all program and family measure scores, between questionnaire items composing those scores, and between scores and scale items. Partial correlations (Hinkle, Wiersma & Jurs, 1979) were computed where needed to correct for additional instruction time in cases where Exit food recalls were actually taken several months before graduation.

Since Family Support was assessed from both technician and homemaker perspectives, correlation and chi-square analyses were employed to check response consistency between technicians and homemakers for the four items involved.

A statistical limitation considered in interpretation of correlations was that of response__set; persons

responding to items on the Homemaker Questionnaire might (a) bias responses upward to provide a favorable evaluation for EFNEP, and/or (b) mark answers to match items which apparently correspond. While effort was made to ensure completion of both survey forms, homemakers were expected to omit responses inevitably or mark "Does not apply" in response to some items; therefore, sample sizes for scale items in both surveys and corresponding correlations were expected to vary.

Results

Sample

Roughly half (54%) of the 224 homemakers in the sample were from urban (Lynchburg, Petersburg and Richmond) and 46% from rural units (Brunswick, Nottoway and Pittsylvania). Almost 90% were nonwhite; all were female. Three quarters received individual instruction, while the remaining homemakers took part in both individual and group (21%) or group EFNEP only (4%). Over half of the homemakers participated in the program for 13 to 18 months (including all Petersburg homemakers), while almost a third participated for seven to 12 months. The remainder were in the program for six months or less, or more than eighteen months.

Educational information was available for 209 homemakers; of these, 43% had completed 11th grade or high school, 36% had completed 9th or 10th grade and 15% had reached 8th grade or below. The 6% remaining had undertaken education beyond high school.

Dietary Findings

Was Dietary Improvement achieved by the time of program completion? Thirty-seven percent of the homemakers attained an optimal food group pattern of

2-2-4-4 or a Diet Score of 100 by program completion (Table 4). At the same time, the number of homemakers who fell below the minimal Diet Score of 43 at Entry dropped 17%. Average Diet Scores (Table 5) increased significantly from 65.5 at Entry to 88.0 at Exit.

Increases in servings from the milk, fruit-vegetable, and bread-cereal groups (Table 5) were responsible for Diet Score gains. One-way ANOVA and Duncan's multiple range tests indicated that homemakers who made higher Diet Score gains at Exit consumed fewer servings of milk products ($F = 33.49, p < .0001$) and fruits/vegetables ($F = 21.11, p < .0001$) at Entry. On the average, homemakers in the three urban units received significantly higher Diet Scores at Exit than did the three rural units ($r = .35, p < .0001$ for 224 cases).

Was Dietary Improvement retained after graduation?

Table 4 indicates that a comparable proportion of homemakers achieved optimal Diet Scores at Follow-up six to 36 months after graduation compared to program Exit. A statistically significant but small decline in average Diet Score occurred from 88.0 at Exit to a Follow-up score of 83.8, indicating slight dietary regression; however, the average Follow-up score remained significantly higher than the average Entry-level Diet Score (65.5), suggesting that Dietary Improvement was retained. Since the sample

Table 4.

Number and Percent of EFNEP Homemakers Meeting Optimal, Minimal and Below Minimal Food Group Patterns at Entry, Exit and Follow-Up Recall

Pattern Level	Entry ¹ (Percent) (n=224)	Exit (Percent) (n=224)	Follow-Up ³ (Percent) (n=180)
Meet or exceed optimal ³ level or 2-2-4-4 ³ (score of 100)	17 (8)	83 (37)	72 (40)
Meet minimal levels of 1-1-1-1 ³ (score between 43 and 99) but still below recommended levels	163 (73)	134 (60)	97 (54)
Below minimal level (or score below 43)	44 (20)	7 (3)	11 (6)
Totals	224	224	180

¹ Percentages in this column do not total 100 due to rounding of figures.

² Forty-four homemakers could not be reached, had moved, or did not participate in follow-up food recall interview for other reasons.

³ Number of servings of milk, meat, fruit-vegetable, and bread-cereal groups, respectively.

Table 5

Average Entry, Exit and Follow-up Food Recall Scores and Individual Food Group Servings for EFNEP Homemakers

Ideal	n = 224				n = 180					
	Entry ₁ (±SD) [Range]	Exit (±SD) [Range]	Difference (±SEM) ²	†	Follow- up (±SD) [Range]	Difference from Entry ³ (±SEM)	†	Difference from Exit ⁴ (±SEM)	†	
24-hour food recall score (in points)	100	65.5 (24.1) [6-100]	88.0 (16.7) [3-100]	+22.5 (1.7)	13.17*	83.8 (21.5) [17-100]	+17.1 (2.1)	8.19*	-4.4 (1.6)	-2.73*
Servings of milk/ milk products	2	1.2 (1.1) [0-6]	1.9 (1.0) [0-6]	+0.7 (0.1)	8.00*	1.7 (1.2) [0-9]	+0.5 (0.1)	4.15*	-0.2 (0.1)	-1.66
Servings of meat	2	2.7 (1.1) [0-7]	2.7 (1.1) [0-7]	0 (0.1)	-0.10	3.2 (1.2) [0-7]	+0.5 (0.1)	3.99*	+0.5 (0.1)	4.47*
Servings of fruits/ vegetables	4	2.3 (1.6) [0-8]	3.5 (1.3) [0-7]	+1.2 (0.12)	10.44*	3.8 (1.7) [0-9]	+1.5 (0.2)	9.69*	+0.3 (0.2)	2.26
Servings of breads/ cereals	4	4.1 (1.9) ⁵ [0-9]	4.8 (1.4) [0-9]	+0.7 (0.1)	4.90*	4.8 (1.8) [0-9]	+0.6 (0.2)	3.61*	0 (0.2)	-0.11

* p < .01

¹ SD = Standard Deviation² SEM = Standard Error of the Mean³ These differences were based on Entry score/serving averages calculated only for those 180 homemakers who provided follow-up recalls.⁴ These differences were based on Exit score/serving averages calculated only for those 180 homemakers who provided follow-up recalls.⁵ 9 = 9 or more servings

at follow-up was only 180, the possibility that the other 44 homemakers might have been shown to have poorer Diet Scores should be considered.

Weak but positive correlations indicated that homemakers who had higher Diet Scores at Entry also scored higher at program completion ($r = .25, p < .0001$ for 224 cases) and at follow-up ($r = .24, p < .001$ for 180 cases). This meant that homemakers with the poorest initial diets were not making the most dietary improvements and retaining them.

Milk and bread-cereal intake declined somewhat but not significantly from Exit to Follow-up. Homemakers on the average consumed more than adequate servings of meat at program Entry and Exit (Table 5); this increased to significantly higher levels at Follow-up. Bread-cereal intake, already at a higher than recommended average level at program Entry, increased significantly ($p < .01$) at program completion and remained high following graduation.

Was length of time in or out of program associated with Dietary Improvement/Retention? No significant correlations or partial correlations (range .01 to .14) were found between length of participation in EFNEP and Dietary Improvement, or between Retention and time period from graduation to Follow-up. In other words, homemaker diets were not improved any more by staying in EFNEP

longer, nor did regression occur any more when homemakers had been out of the program longer.

Program Findings

High average responses to Homemaker Perceived Educational Gain items (Table 6) indicate that most homemakers reported learning "many things" or "an enormous amount" in EFNEP topic areas listed. The most successful learning areas were how to get better food buys and what foods were in the basic four food groups. The area of least knowledge gain was finding other food resources; some families may have already been participating in Food Stamp and/or WIC programs prior to enrollment and thus might not have learned of these first from EFNEP. One hundred and eighty homemakers earned an average Educational Gain Score of 26.3, ranging from 16 to 32. Seventy-one percent scored between 25 and 32.

Similarly, homemakers generally responded with high ratings for Perceived Program Benefit items (Table 7), indicating that EFNEP helped "very much" or "an enormous amount" in the 12 behavior change areas. Homemakers perceived the greatest benefit in finding food bargains. The lowest-rated benefits were having families sick less often and finding other food resources. Program Benefit Scores ranged from 25 to 48 with an average of 38.5, and

Table 6

Responses of EFNEP Homemakers to Perceived Educational Gain Items

Item	Response frequency (percent) ¹				Average response (± SD)	(n) ²
	1 Didn't learn anything	2 Learned some things	3 Learned many things	4 Learned an enormous amount		
1. Why eat the right foods	0	18 (10)	99 (55)	63 (35)	3.2 (0.6)	(180)
2. Basic four	0	7 (4)	83 (46)	90 (50)	3.5 (0.6)	(180)
3. What foods to limit	0	18 (10)	98 (55)	61 (34)	3.2 (0.6)	(177)
4. Better food buys	0	12 (7)	62 (35)	101 (58)	3.5 (0.6)	(175)
5. Feeding baby/children	0	18 (11)	79 (49)	64 (40)	3.3 (0.6)	(161)
6. New ways to prepare food	0	17 (9)	79 (44)	84 (47)	3.4 (0.6)	(180)
7. Safe food storage	0	23 (13)	95 (53)	62 (34)	3.2 (0.6)	(180)
8. Finding other food resources	1 (1)	43 (28)	77 (51)	30 (20)	2.9 (0.7)	(151)
Average Educational Gain Score ³ (Score range: 16-32)					26.3 (3.3)	(180)

¹ Percentages in each row may not total 100 due to rounding of figures.

² Differing sample sizes for each item reflect "Does not apply" responses and/or missing data.

³ Derived by summing response values of all 8 items, resulting in a possible score of 32.

Table 7

Responses of EFNEP Homemakers to Perceived Program Benefit Items

Item	Response frequency (percent) ¹				Average response (± SD)	(n) ²
	1 Didn't help at all/no change	2 Helped a little	3 Helped very much	4 Helped an enormous amount		
1. Family sick less often	16 (10)	26 (16)	101 (61)	23 (14)	2.8 (0.8)	(166)
2. Family eating greater variety	0	7 (4)	108 (61)	63 (35)	3.3 (0.5)	(178)
3. Eating fruits/vegetables daily	0	17 (10)	112 (63)	50 (28)	3.2 (0.6)	(179)
4. Having milk products daily	0	23 (13)	104 (58)	51 (29)	3.2 (0.6)	(178)
5. Eating less junk foods	0	24 (14)	83 (47)	71 (40)	3.3 (0.7)	(178)
6. Finding food bargains	1 (1)	9 (5)	78 (44)	91 (51)	3.4 (0.6)	(179)
7. Food dollar stretching more	0	20 (11)	84 (48)	72 (41)	3.3 (0.7)	(176)
8. Reading labels	0	27 (15)	92 (51)	60 (34)	3.2 (0.7)	(179)
9. Feeding baby ³	0	10 (13)	37 (48)	30 (39)	3.2 (0.7)	(77) ³
10. Family trying new foods	0	20 (11)	84 (47)	74 (42)	3.3 (0.7)	(178)
11. Storing foods safely	0	14 (8)	96 (56)	63 (36)	3.3 (0.6)	(173)
12. Finding other food resources	2 (1)	28 (19)	80 (54)	38 (26)	3.0 (0.7)	(148)
Average Program Benefit Score ⁴ (Score range: 25-48)					38.5 (4.9)	(179)

¹ Percentages in each row may not total 100 due to rounding of figures.

² Differing sample sizes for each item reflect "Does not apply" responses and/or missing data.

³ Small number of responses possibly because not all homemakers had babies.

⁴ Derived by summing response values of all 12 items, resulting in a possible score of 48.

with 70% of 179 homemakers scoring between 37 and 48. High correlations among items in both scales and a significant relationship between Educational Gain and Program Benefit Scores ($r = .65$, $p < .0001$ for 179 cases) confirm homemaker response consistency between the two scales.

Family Findings

Family Composition. Over half (53%) of the 224 families were single-headed; 41%, two-parent households; and 6%, extended families. Seventy percent of the homemakers had at least one child five years old or younger; 57% had children between six and 13, and 24% had children older than 13. Average age was 31.

Family Resource Assistance. Sixty-nine percent of the families studied earned \$519 per month or less; 71% participated in the Food Stamp Program, 68% in WIC, and 42% received public assistance. Resource Assistance Scores for 209 families ranged from 0.1 to 4, with an average score of 2.3 points; 57% scored 2 or above.

The Resource Assistance Score was positively associated with single-parent family type ($r = .28$, $p < .0001$), while inversely related to two-parent families ($r = -.27$, $p < .0001$ for 209). This trend and other correlations between the same score and number of children five years or younger ($r = .36$, $p < .001$) and homemaker age

($r = -.36$, $p < .0001$ for 196 cases) suggested that younger, single-parent families with children in the sample were more likely to be receiving public resource assistance. This may reflect the greater eligibility of single females with young children for food assistance programs.

Household Roles and Responsibilities. The average Household Role/Responsibility Score for 224 homemakers (which excluded earning money and home repair items) was 8.2 out of 9, ranging from 1 to 9; 155 (69%) had perfect scores of 9. This indicated that childcare, housework and food-related tasks were usually female-assigned in this sample. Homemakers took primary responsibility for earning money in over a third of the families (Table 8) and for home repair/maintenance in one quarter of the cases. A spouse/partner was primary money earner in 28% and did most home repairs in 23% of the families. Technicians indicated that "no one" earned money for 27% or did home repairs for 23% of the sample. Compared to two-parent families ($r = -.12$, $p < .10$), single-parent households had significantly higher Household Role/Responsibility Scores ($r = .26$, $p < .0001$). This indicated that single parents in the sample were assuming additional responsibilities otherwise shared in two-parent families.

Table 8

Family Members Primarily Responsible for Household Roles/Responsibilities as Reported by Technician

Role/Responsibility	Homemaker	Spouse or Partner	Other Female Adult	No One
1. Deciding what food will be purchased	208 ¹ (93) ²	6 (3)	9 (4)	1 (0)
2. Making most other household decisions	184 (82)	23 (10)	14 (6)	3 (1)
3. Actually purchasing food	208 (93)	6 (3)	7 (3)	2 (1)
4. Preparing food for household	208 (93)	2 (1)	11 (5)	2 (1)
5. Earning money ³	82 (37)	63 (28)	7 (3)	61 (27)
6. Obtaining other food resources, e.g., food stamps	190 (85)	1 (0)	6 (3)	24 (11)
7. Taking charge of food money or food stamps	202 (90)	9 (4)	9 (4)	3 (1)
8. Taking charge of other household money matters	173 (78)	34 (15)	12 (5)	0
9. Taking care of children	212 (95)	2 (1)	6 (3)	2 (1)
10. Doing housework	208 (93)	3 (1)	7 (3)	0
11. Home repair/maintenance ³	56 (25)	52 (23)	4 (2)	52 (23)

¹ Value represents number of families out of 224.

² Percent of 224 cases; since values for other male adults, younger children and older children are omitted, percent figures in all rows do not total 100.

³ These items not included in Household Role/Responsibility Score.

Family Support. Homemaker ratings of Family Support (Table 9) were reasonably high, with greatest support received when homemakers prepared EFNEP recipes. The average Family Support Score was 21.9 out of 28 for 180 homemakers, with scores ranging from 14 to 28; 69% scored 21 or above.

Technicians and homemakers both gave similar ratings for Family Support for adults and children (Table 10). Generally substantial correlations among ratings of support for family members as given by technicians and homemakers (Table 11) attested to the consistency of both sources.

Family Diet Control. The majority of homemakers in the sample assumed responsibility for trying to improve the family diet; over half believed they were able to actually make changes in family eating habits and indicated that family members tended to eat what homemakers recommended (Table 12). The average Family Diet Control Score was 12.2 out of 15 for 173 homemakers, with scores ranging from 6.2 to 15; 73% scored 11 or above.

While length of time in program was not related to Dietary Improvement or Retention (see Dietary Findings), it was associated with control over family food habits as reflected in the Family Diet Control Score ($r = .28$,

Table 9

Responses of EFNEP Homemakers to Family Support Items

Item	Response frequency (percent) ¹				Average response (± SD)	(n) ²
	1	2	3	4		
Homemaker ratings of family behavior when:	Refuse, disagree or criticize	No Opinion	Agree or say good things	Praise or compliment		
1. Homemaker spends resources on foods taught about in EFNEP	0	15 (9)	91 (54)	61 (36)	3.3 (0.6)	(167)
2. Homemaker prepares EFNEP recipe	0	9 (5)	78 (44)	92 (51)	3.5 (0.6)	(179)
3. Homemaker plans meals with family	2 (1)	25 (14)	96 (55)	51 (29)	3.1 (0.7)	(174)
4. Family is talking together about EFNEP	0	38 (22)	98 (57)	35 (20)	3.0 (0.6)	(171)
5. Family is talking with friends, neighbors or relatives about EFNEP	0	41 (23)	82 (47)	52 (30)	3.1 (0.7)	(175)
Homemaker ratings of program support from:	Don't want you to be involved	Neutral or don't care	Generally support you being involved	Strongly support and encourage you being involved		
6. Spouse or partner	0	21 (22)	35 (36)	41 (42)	3.2 (0.8)	(97)
7. Older children (13 years +)	1 (1)	31 (36)	27 (32)	26 (31)	2.9 (0.8)	(85)
8. Younger children (< 13 years)	0	41 (31)	59 (44)	34 (25)	2.9 (0.7)	(134)
9. Other adults in household	1 (2)	2 (4)	15 (34)	26 (59)	3.5 (0.7)	(44)
Average Family Support Score ³ (Score range: 14-28)					21.9 (3.4)	(180)

¹ Percentages in each row may not total 100 due to rounding of figures.

² Differing sample sizes for each item reflect "Does not apply" responses and/or missing data.

³ Derived by summing response values of 7 items (excluding 6 and 9 due to poor intercorrelation) for a possible score of 28.

Table 10

Comparison of Homemaker and Technician Reports of Family Support
for EFNEP

Family member category	Average response ¹ from homemaker	(n) ²	Average response ¹ from technician	(n) ²
1. Spouse or partner	3.2	(97)	3.1	(100)
2. Older children (13 years +)	2.9	(85)	2.8	(74)
3. Younger children (< 13 years)	2.9	(134)	2.8	(148)
4. Other adults in household	3.5	(44)	3.2	(47)

¹ Based on 4-point-scale where 1 = lowest and 4 = highest rating.

² Differing sample sizes for each item reflect "Does not apply" responses and/or missing data.

Table 11

Correlations Between Homemaker and Technician Reports of Family Support
for EFNEP

Technician report of family support	Homemaker report of family support			
	1. Spouse or partner	2. Older children	3. Younger children	4. Other adults
1. Spouse or partner	.29* (n=68)	.56*** (n=42)	.29* (n=61)	.28 (n=17)
2. Older children	.58*** (n=37)	.52*** (n=54)	.42** (n=45)	.48# (n=13)
3. Younger children	.28* (n=64)	.34** (n=56)	.21* (n=99)	.16 (n=28)
4. Other adults	-.11 (n=14)	.35 (n=16)	-.04 (n=28)	.39# (n=24)

*** p < .0001

** p < .01

* p < .05

p < .10

Note: Small sample sizes reflect considerable number of "Does not apply" responses.

Table 12

Responses of FFNFP Homemakers to Family Diet Control Items

Item	<u>Response frequency (percent)¹</u>			Average response (± SD)	(n) ²
	1 Very true for family	2 Sometimes true for family	3 Not true for family		
1. Children eat what they want no matter what homemaker recommends.	7 (4)	62 (38)	96 (58)	2.5 (0.6)	(165)
2. Spouse or partner eats what (s)he wants no matter what homemaker recommends.	5 (4)	48 (43)	58 (52)	2.5 (0.6)	(111)
3. Family usually eats what homemaker recommends.	78 (46)	60 (35)	33 (19)	2.3 ³ (0.8)	(171)
4. Homemaker assumes responsibility for trying to improve family eating habits.	122 (70)	21 (12)	30 (17)	2.5 ³ (0.8)	(173)
5. Homemaker is able to make changes in what family eats.	91 (53)	52 (30)	30 (17)	2.4 ³ (0.8)	(173)
Average Family Diet Control Score ⁴ (Score range: 6.2 - 15)				12.2 ³ (2.4)	(173)

¹ Percentages in each row may not total 100 due to rounding of figures.

² Differing sample sizes for each item reflect "Does not apply" responses and/or missing data.

³ Average values calculated for these items reflect reversed scaling, in which 3 = Very true and 1 = Not true.

⁴ Derived by summing response values of 5 items for a possible score of 15.

$p < .001$ for 168 cases). Correlations for two items in the score were significant; homemakers who were in the program longer asserted greater responsibility for improving family diet ($r = .30$, $p < .0001$) and were able to make changes in family diet ($r = .31$, $p < .0001$). Homemakers in two-parent families had no more or less control over family food practices than did single-parent homemakers, as indicated by near-zero correlations between both family types and the Family Diet Control Score.

Only one significant relationship was found among the family scores, a weak negative correlation between Resource Assistance and Family Support Scores (Table 13); at the same time, income level was positively related to the Family Support Score ($r = .29$, $p < .0001$ for 171 cases). In other words, families showing more support for homemaker involvement in EFNEP tended to have higher relative incomes within the poverty guidelines (USDHHS, 1985) and use public resources less.

Relationships Among Measures

Neither family type, number of children, nor age of homemaker - measures of Family Composition - were significantly related to Dietary Improvement/Retention or to Diet Scores. (Family Composition measures, since they were descriptive of demographic family parameters - and

Table 13

Correlations Among EFNEP Family Measures¹

	Resource Assistance Score	Household Role/Responsibility Score	Family Support Score	Family Diet Control Score
Resource Assistance Score	1.00	-.02	-.22* (n=171)	-.12
Household Role/Responsibility Score		1.00	-.02	-.01
Family Support Score			1.00	-.02
Family Diet Control Score				1.00

* p < .01

¹ Excluding measures of Family Composition.

not in score form - were not included with other family measures for comparison with program and dietary measures in the following discussion and accompanying tables.)

Families in which technicians indicated "no one" earned money tended to consume lower numbers of fruit-vegetable servings prior to EFNEP instruction ($r = -.30$, $p < .0001$ for 213 cases). Many of the same families had high Resource Assistance Scores ($r = .26$, $p < .001$ for 199 cases).

A weak but negative correlation ($r = -.25$, $p < .001$ for 179 cases) was found between the Educational Gain Score and Overall Dietary Improvement. Other correlations between Dietary Improvement/Retention (as measured by Diet Score differences - Table 3) and program measures (Educational Gain and Program Benefit Scores) followed a negative trend but were not significant. However, when actual Diet Scores were examined, a positive association was found between the Program Benefit and Entry Diet Scores ($r = .26$, $p < .001$ for 179 cases), i.e., those with better Diet Scores at enrollment reported more benefit from program participation.

Strong association of both Educational Gain and Program Benefit Scores with the Family Support Score (Table 14) suggests that in this sample program success from the client's perspective - both in terms of knowledge

Table 14

Correlations Among Program and Family Measures

	Resource Assistance Score	Household Role/Responsibility Score	Family Support Score	Family Diet Control Score
Educational Gain Score	-.01	.02	.30* (n=180)	.04
Program Benefit Score	-.13	-.07	.54* (n=179)	-.01

* $p < .0001$

gains and related benefits - depended on a family environment of support and acceptance of homemaker involvement in EFNEP. Other correlations between program and family measures were not significant.

Comparison of Dietary Improvement/Retention with family measures revealed no significant relationships (Table 15). However, when family measures were compared to actual Diet Scores (Table 16), both Exit and Follow-up Diet Scores were significantly related to the Family Support Score. In summarizing the relationships found between dietary, program and family measures (Figure 2), Family Support emerges not only as being related to success of the Virginia EFNEP in the view of homemakers, but also as positively related to actual dietary outcome in this sample, both at program completion and up to three years later.

Table 15

Correlations Among Dietary Improvement/Retention¹ and Family Measures

	Initial Dietary Improvement	Retention of Dietary Improvement	Overall Dietary Improvement
Resource Assistance Score	.12	-.13	-.02
Household Role/ Responsibility Score	.09	-.05	.07
Family Support Score	.11	.06	.16
Family Diet Control Score	-.01	.05	.03

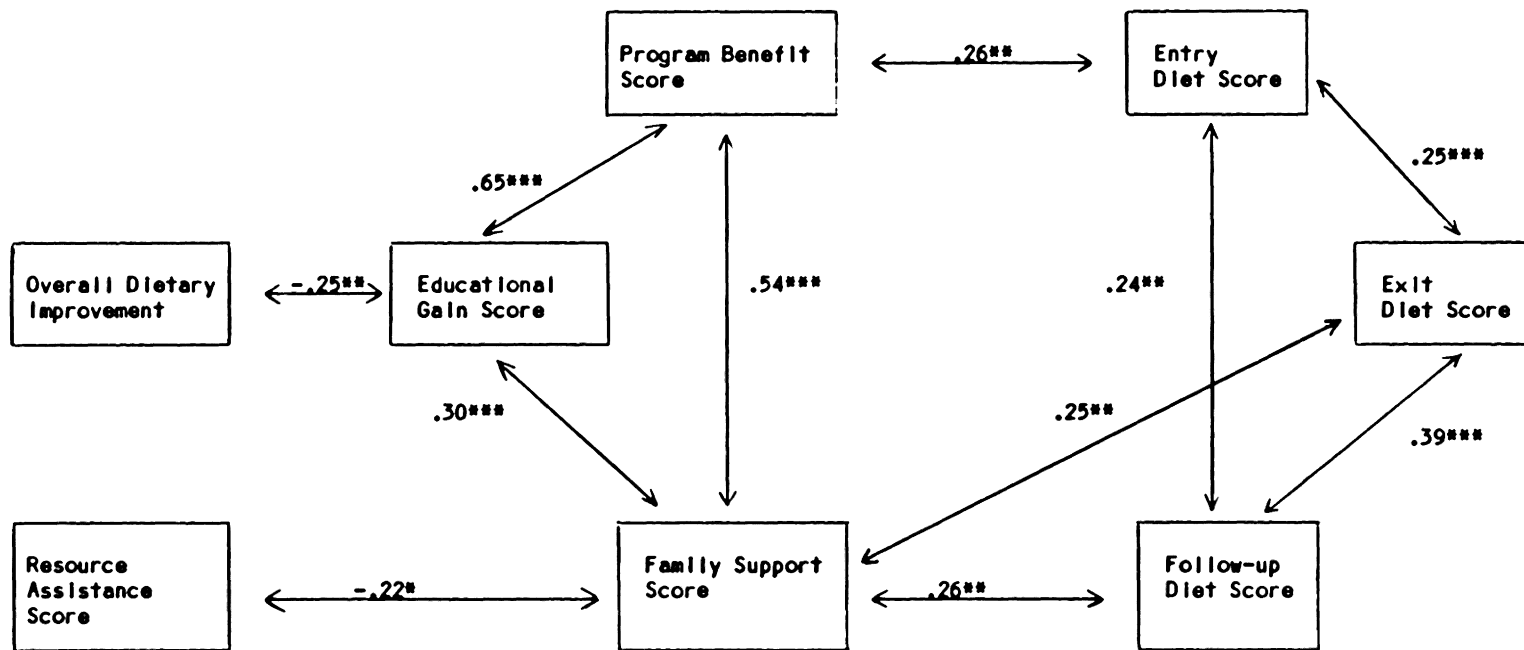
¹ Measured in terms of Diet Score differences as indicated in Table 3.

Table 16

Correlations Among Diet Scores and Family Measures

	Entry Diet Score	Exit Diet Score	Follow-up Diet Score
Resource Assistance Score	-.10	.03	-.14
Household Role/Responsibility Score	-.03	.09	.01
Family Support Score	.06	.25* (n=180)	.26* (n=179)
Family Diet Control Score	-.07	.12	-.04

* $p < .001$



*** p < .0001
 ** p < .001
 * p < .01

Figure 2. Summary of significant relationships among dietary, program and family measures.

Discussion

Dietary Findings

Dietary Improvement. Increase in the average Diet Score for Virginia EFNEP homemakers from Entry to program completion (Table 5) was encouraging because Dietary Improvement followed program participation, and because the milk and fruit-vegetable groups accounted primarily for Diet Score increases. In fact, average servings of milk and fruits-vegetables for 224 Virginia homemakers at program Exit in the present study were comparable to Exit means for the same food groups reported by Block et al. (1985) for 355 California EFNEP homemakers, and by Amstutz and Dixon (1986) for 129 Maryland EFNEP homemakers (Table 17). Fleming and Splett (1985) also reported improvement in the dairy and fruit-vegetable food groups for program homemakers in Minnesota. Jordan (1985) reported mean Entry, Exit, and Follow-up Diet Scores of 56.1, 85.7, and 85.7, respectively, for 121 EFNEP homemakers in Oklahoma.

According to the 1985 Nationwide Food Consumption Survey (NFCS), diets of American women of all classes were reported to be below the 1980 Recommended Dietary Allowance (RDA) for calcium, iron, magnesium, zinc, vitamin B-6 and folacin (Peterkin, 1986; USDA, 1986),

Table 17

Comparison of Average Diet Scores and Food Group Servings¹ for Virginia, California and Maryland EFNEP Evaluation Studies

	Entry					Diet Score	Exit					Diet Score	Follow-up				
	M	Mt	F/V	B/C	M		Mt	F/V	B/C	M	Mt		F/V	B/C			
Virginia (present study)	65.5	1.2	2.7	2.3	4.1	→	88.0	1.9	2.7	3.5	4.8	→	83.8	1.7	3.2	3.8	4.8
					(n=224)						6-36		(n=180)				
											months ²						
California (Block et al., 1985a, Joy et al., 1987)	65.6	1.3	2.5	2.6	4.7	→	76.7	1.8	2.7	3.7	4.7	→	80.0	1.6	2.9	4.4	5.2
					(n=355)						24-36		(n=73)				
											months						
Maryland (Amstutz and Dixon, 1986)	54.4	0.8	2.1	2.2	3.4	→	82.9	1.6	2.5	3.5	4.5	→	76.0	1.3	2.4	3.3	4.4
					(n=129)						2-43		(n=129)				
											months						

¹ Based on Ideals of: Score = 100; Milk (M) = 2; Meat (Mt) = 2; Fruit-Vegetable (F/V) = 4; Bread-Cereal (B/C) = 4.

² Range of time between Exit and Follow-up.

nutrients primarily found in foods from the milk and fruit-vegetable groups. With respect to the Virginia EFNEP population studied, intakes of all of these nutrients were below two-thirds of the RDA for black women and for households under 131% of the poverty threshold - and in the Southern region of the United States, intakes were below two-thirds of RDA for all of the above nutrients except calcium (Peterkin, 1986).

Other researchers have reported low intakes of milk products for black women in the Southern U.S. (Bass, Owsley & McNutt, 1985). One group of young Appalachian women (94% white) was found to have low average intakes of Vitamin A, calcium and iron, according to 24-hour food records (Skinner, Salvetti, Ezell, Penfield & Costello, 1985). When food categories were examined for the same 24-hour period for both teen girls and boys in the sample (n = 211), only 7.6% reported consuming at least one serving of a Vitamin A-rich vegetable for the evening meal. In view of these findings and those of the NFCS, it is significant that 224 Virginia EFNEP homemakers - consisting of both teen and adult mothers, the majority of whom were black - were able to increase average intake of milk products and vegetables through the course of the program. The decline in milk product consumption from Exit to Follow-up in all three studies (Table 17) suggests

that this food group deserves particular attention in future EFNEP efforts.

Retention of Improvement. Lasting effects of a nutrition intervention are demonstrated when dietary improvement is retained months and/or years after the intervention. Such has been shown in recent EFNEP evaluations (Amstutz & Dixon, 1986; Jordan, 1985; Joy et al., 1987) (Table 17). T-test results for 180 homemakers interviewed in the present study (Table 5) suggest overall dietary improvement and retention in consumption of the Basic Four food groups, and only slight regression in Diet Score from time of graduation.

Limitations of food group scoring methods must be acknowledged (see Methodology - Description of Data) in assessing improvement and retention, i.e., in the areas of general overconsumption of foods in the four recommended groups and from the fifth food group. Amstutz and Dixon (1986) were able to demonstrate both dietary improvement and retention in 129 Maryland EFNEP graduates, as well as a significant ($p < .01$) decrease in average servings from the fifth food group for 29% of the homemakers. While the present study did not examine fifth food group consumption, the latter could be included in future Virginia EFNEP evaluations because the food recall form has been revised to permit the recording of intake from

this group.

Another concern is that information sources independent of EFNEP might have affected retention of homemaker dietary behavior between program graduation and Follow-up. Examples are increased media attention to food and nutrition issues (Amstutz & Dixon, 1986, Hertzler & Owen, 1976, 1984; Johnson, 1984) or participation in other community health/nutrition education programs by the homemaker or other family members (Edwards, Mullis & Clark, 1986; Hertzler & Owen, 1976). Including a separate control group in a future study would aid in assessing impact (both positive and negative) from health and nutrition information sources outside of the program.

Length of time in program. The present study found that length of time in program did not affect dietary improvement or retention. Results of other EFNEP studies regarding effect of length of program participation on dietary improvement have been mixed. Brink et al. (1985) reported no significant relationship between time in program nor number of lessons received and food group or nutrient intake. Block et al. (1985), however, found that a greater number of visits did account for dietary improvement of California homemakers. While the California EFNEP found little impact of time period between visits, Ross (1986) was able to decrease dropout

rate in the Wyoming EFNEP by shortening the interval between visits and implementing a concentrated six-month program. While Ross did not address dietary improvement or retention, her findings point to a more time-efficient method of conducting EFNEP which may (a) accommodate the time limitations for transient or migrant families nationwide, and (b) help in optimizing use of EFNEP time and human resources.

Program Findings

Homemakers in Virginia rated the program high in terms of knowledge gains and related benefits (Tables 6 and 7). The California EFNEP (Block et al., 1985) also received high marks from its homemakers with regard to how much they felt they had learned. Areas specifically cited were feeding families a greater variety of foods and recipes, feeding infants and children, and saving money.

Despite overwhelmingly positive feedback concerning the program from participants in the present study, upward bias in responses and missing data from the 44 homemakers not reached for interview must be recognized as possible confounding factors. Further, the program component of the study was a Post-test-only assessment of Perceived Educational Gain and Program Benefit.

The inverse relationship between Perceived Educational Gains and Overall Dietary Improvement, although weak, was of interest. A positive connection between nutrition knowledge and dietary behavior was suggested in recent work (A meta-analysis, 1985) which examined EFNEP, WIC and National Dairy Council nutrition education programs. Nevertheless, Brink et al. (1985) found a negative correlation ($r = -.31, p < .05$) between the average Knowledge Score of 53 New York EFNEP homemakers and their iron intake per 1000 kilocalories at Follow-up food recall.

Family Findings Related to Program Success and Dietary Outcome

Lack of relationship between Family Composition and dietary measures was not surprising in view of similar findings by others evaluating EFNEP (Amstutz & Dixon, 1986; Block et al., 1985; Jordan, 1985). While structural elements of the family set the stage for certain interactions and behaviors related to food, the elements themselves (i.e., family type, number of children, homemaker age) appear not to adequately predict dietary habits (Hertzler & Vaughan, 1979).

Tasks in the Household Role/Responsibility scale were generally associated with "feminine" activities for food

purchasing and family meal preparation (Keith & Schafer, 1982) rather than "Earning money" or "Home repair," reflecting the traditional division of labor believed by Szinovacz (1984) to persist in the U.S. despite changing roles of men and women. Others contend, however, that having a large amount of responsibility and authority (legitimate power) within a household is not the same as having ultimate control (actual power) over resources (Ferree, 1984). This may account for lack of relationship between Household Role/Responsibility and Family Diet Control Scores. While both describe the homemaker in relation to her family, the Household Role/Responsibility Score may reflect legitimate power while the Family Diet Control Score implies actual power of the homemaker to change food habits. Further, authority for managing family food resources or being a "gatekeeper" of dietary information may not guarantee having control over the dietary behavior of family members (McIntosh & Zey-Ferrell, 1987), nor their exposure to ideas about family and health issues communicated by the mass media.

Yetley, Yetley and Aguirre (1981), working with Mexican-American nuclear families in the Southwest U.S., advocated a two-pronged strategy for nutrition education programs aimed at increasing communication between food

manager and power figure in families. Educational efforts were recommended which would strengthen the homemaker's position in the family structure. Such an approach might find application in those EFNEP families composed of two-parent units (husband-wife), or even single-parent families in which another adult (e.g., grandmother, aunt) resides in the same household and where food manager and "power figure" are two different individuals.

The Family Support Score emerged as the only family measure related to Educational Gain and Program Benefit Scores and to Diet Scores at program completion and Follow-up. Social support has been described as "a form of family communication that may play an important part in determining the climate of health behavior and its change in families" (Baranowski et al., 1982). Family support related to diet and exercise practices (Baranowski et al., 1982; Nader et al., 1983) and the breastfeeding decision (Baranowski et al., 1983) have been measured using self-report scales. According to Dixon (1982), the degree to which EFNEP homemakers were likely to retain commitment to changed dietary habits depended in part on the level of expectation from family members, peers and others that the homemaker would adhere to newly adopted dietary practices. A nonsupportive home environment could result in regression of any dietary improvements made.

Does a high Family Support Score also suggest an open and pleasant atmosphere which encourages communication between household members? Is it possible that those with low Entry Diet Scores did not have the same degree of support in the family environment as did homemakers with higher Entry (and subsequently higher outcome) Diet Scores? If so, information-sharing within the family unit may act as a more powerful force in determining program success than the degree to which the homemaker manages family resources (Household Roles/Responsibilities) or attempts to influence family eating habits (Family Diet Control). While further research is needed to confirm this, results of the present study point to Family Program Support as a positive influence on dietary outcome and program success, and suggest the need for involving as many family members as possible in the nutrition education process. This concern has been expressed by others interested in targeting the husband for instruction in EFNEP (Santopolo et al., not dated) and in other community nutrition education programs (Burt & Hertzler, 1978; Yetley et al., 1981).

Family support as measured in this study exerted significant influence on program success and dietary outcome in a group composed of both single- and two-parent families. Some have described nuclear families as more

"stable" than single-parent units (Larkin, Owen & Rhodes, 1970), and rural families headed by widows have been reported to be less cohesive and more poorly nourished than those with a husband present (Hertzler, Caldwell & Mark-Teo, 1987); such a view can sometimes lead to stereotyping and low expectations of non-nuclear families on the part of educators. Considering that no relationships were found between the Family Support Score and either family type ($r = 0$ for both) in this sample of homemakers, it is evident that nutrition educators are as likely to find a supportive family environment receptive to new information in a single-headed household as in a two-parent household.

Questions for nutrition educators which arise from study results are: (a) Is a more intensive approach needed for homemakers entering EFNEP who have very low scores, i.e., below the minimal level of 43 points - compared to those who are at least consuming minimal servings of the four food groups (1-1-1-1) at enrollment? (b) Could such an approach be implemented within time and resource constraints of EFNEP? and (c) Should additional lesson content be included which addresses family dynamics? Some successful nutrition education programs have taught families skills in communication (Frankle, 1985), parenting and child management (Epstein et al., 1986),

problem solving (Baranowski et al., 1982; Nader et al., 1983), and techniques for changing diet and health behavior (Baranowski et al., 1982; Brownell, Kelman & Stunkard, 1983; Epstein et al., 1986; Frankle, 1985; Leonard, D'Augelli & Smiciklas-Wright, 1984; Nader et al., 1983; Smiciklas-Wright & D'Augelli, 1978).

In summary, identifying influential household members and targeting them for instruction may serve as a first step for nutrition educators toward improving food intake of families; however, imparting information to such individuals alone may not be adequate for bringing about lasting dietary change. Family members must share and act on new information and support one another in changing and maintaining new food habits (Hertzler, 1984; Hertzler & Owen, 1984; Hertzler, Robbins & Walton, 1986; Hertzler & Schulman, 1983; Johnson, 1984; Yarbrough, 1981).

Summary and Recommendations

Summary

Twenty-four hour food recalls of 224 graduated Virginia EFNEP homemakers were compared from program entry to exit to assess Initial Dietary Improvement; 180 were reached for interviews six to 36 months after graduation, during which follow-up food recalls were conducted to assess Retention of Dietary Improvement, and feedback received from homemakers regarding Perceived Educational Gains and Program Benefits from participating in EFNEP. Family factors thought to be related to dietary change were also explored by surveying both homemakers and their original technicians; these included Family Composition, Family Resource Assistance, Household Roles and Responsibilities and Family Support.

The following findings and conclusions were made:

1. Overall Dietary Improvement was achieved for the group, with increases in milk and fruit-vegetable consumption accounting for most of the Diet Score increases ($p < .01$).

2. Six months to three years after leaving EFNEP, 180 homemakers as a group retained the level of improvement achieved by the original sample, with slight but significant ($p < .01$) Diet Score regression, occurring

primarily in the milk group.

3. Homemakers with higher Entry-level Diet Scores tended to score higher at program completion and Follow-up, and to have higher Program Benefit Scores.

4. Average Entry, Exit, and Follow-up Diet Scores and servings from the Basic Four food groups were similar to the results of program evaluations conducted in California, Maryland, and Oklahoma; this suggests that EFNEP in Virginia during the 1984-1985 period was achieving a comparable level of dietary improvement for its homemakers as that in other states.

5. Length of time in program was not significantly associated with Diet Score differences from program Entry to Exit, nor was time out of the program associated with Diet Score regression. Since most homemakers in the sample were in the program for either 12 or 18 months, these results suggest that participation longer than one year will not result in greater dietary improvement of the homemaker.

6. High average Educational Gain and Program Benefit Scores were evidence of program success from the perspective of Virginia EFNEP homemakers in 1984-1985. Strong relationship between the two scores indicated response consistency of homemakers on both scales; results suggested that knowledge gains were translated into

tangible program benefits for homemakers and their families.

7. Single-headed families with young children tended to receive food-related public resources more, as determined by the Resource Assistance Score; however, no Family Composition measures were related to homemaker dietary outcome.

8. The homemaker emerged as the family member primarily responsible for household/food-related tasks and decision areas; most assumed responsibility for improving family food habits, and over half reported they were able to make dietary changes in their families; however, neither score was related to homemaker dietary outcome.

9. High average Family Support Scores indicated that most homemakers had families who accepted and supported their participation in EFNEP. Homemaker and technician ratings of support from family members were in general agreement.

10. Homemakers with high Family Support Scores had not only higher Diet Scores at program completion and Follow-up, but also rated EFNEP higher in Educational Gains and Program Benefits; no other family measure was related to homemaker dietary outcome.

Recommendations

1. The Virginia EFNEP has experienced increasing demand for its services in the face of limited funds; due to inflation and no increase in funding of the program since 1980, paraprofessional staff has been reduced by 42% since 1984 - thus fewer families are being served (B. S. Mifflin, personal communication, September, 1987). Action should be taken at both state and federal levels to seek continued support with additional funding to cover operational costs and reach more families in need of nutrition education.

2. Special attention should be directed toward homemakers who consume below the minimally acceptable diet pattern of 1-1-1-1 (or below a Diet Score of 43) at enrollment, since this group is not at present making the most dietary improvements. What could be done to enhance improvement and retention for these families?

Such effort would involve not only greater emphasis on food groups for which it is difficult to achieve and maintain adequate consumption levels (e.g., milk products), but also attention to the role of family support in reinforcing positive food practices learned in EFNEP.

Additional lesson content for EFNEP homemakers who are participating in individual instruction could address

the challenge of achieving dietary behavior change and include practical suggestions for homemakers on how to enlist the support and participation of other family members in food-related decisions. Lesson content for families participating in group EFNEP instruction could emphasize the importance of supporting one another in following a balanced diet - not just for now but for a lifetime.

3. EFNEP technicians would benefit from inservices or workshops which address how to involve other family members in learning activities with the homemaker and technician, and which help them explore ways to promote family support in their instruction. EFNEP supervisory staff should become familiar with local family counseling and support groups so that families with special needs can be referred appropriately. Units located near colleges or universities with family counseling programs might arrange to make such services available at little or no cost to EFNEP families and at the same time present institutions with the opportunity to strengthen their ties with the community.

4. The diet scoring method used in this and other EFNEP studies should be expanded to account for contribution of the fifth food group (fats and sweets) and items from the Basic Four Food Groups which are consumed

beyond recommended amounts. The Synectics scoring table might be used in the same way to obtain a "base" score of 0 to 100; then points could be subtracted for exceeding a specified number of servings from each of the five food groups. Not only would the issue of overconsumption be addressed, but possible nutritional contributions from certain items in the fifth food group would be considered.

5. Nutrition educators can benefit from greater dialogue with experts in family development toward developing improved operational measures of family dynamics for comparison with dietary behavior. In light of the present study results, for example, a small-sample study could be conducted in which both dietary and family support data are collected from all household members who are able to respond, so that program impact and its relationship to family support could be assessed from the unique perspective of each member.

6. To address the possible influence of mass media and family participation in other community nutrition programs on EFNEP homemaker dietary outcome, future evaluations might include both a larger sample with a separate control group and assess (via questionnaire, interview, or observation) the degree of family access to these additional nutrition information sources or networks.

7. Exploring further the impact of length of time in EFNEP on program success, a future evaluation in Virginia could compare a six-month course with more frequent lessons to a less concentrated 12-month enrollment - in terms of both dietary improvement/retention and cost-effectiveness.

EFNEP is a nutrition education intervention which seeks to help low-income families maximize the few food resources they have in order to achieve better diets. In light of this mission and family findings which emerged in the present study, further research is needed which examines the role of family variables (e.g., family support, family communication, stress in the family, etc.) which either enhance or serve as barriers to positive dietary change.

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APPENDIX 1

OMB NO. 493510

EXPANDED FOOD AND NUTRITION EDUCATION PROGRAM

FAMILY RECORD

A. DESCRIPTION

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

FH! 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. _____

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

(a) Name _____

(b) Street _____

(c) City _____ (d) State _____

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

13. HIGHEST GRADE IN SCHOOL COMPLETED BY HOMEMAHER

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

14. CHECK FOR HOMEMAHER

(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 84,000

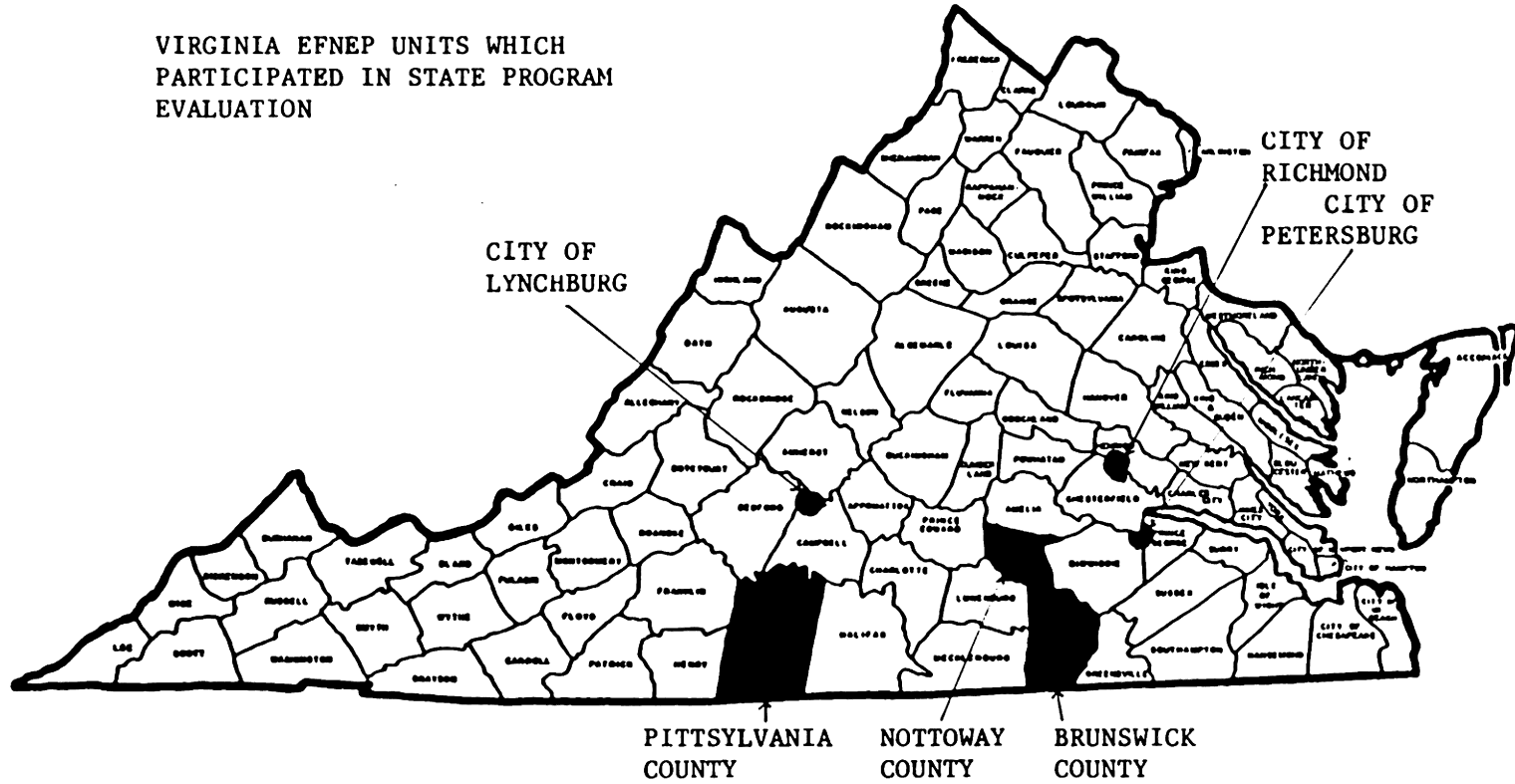
Suburbs of Cities of over 80,000

Central Cities of over 80,000

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 TRAINER AGENT			
<i>To be filled out by Aide on Homemaker</i>		Milk	Meat	Veg/ Fruit	Bread/ Cereal
<i>Kind of food and drink (Enter main foods in mixed dishes)</i>					
Morning:					
Midmorning:					
Noon:					
Afternoon:					
Evening:					
Before bed:					
4. TOTAL ACTUAL INCOME FOR FAMILY LAST MONTH?		(5)	(6)	(7)	(8)
\$ _____		TOTAL NO. OF SERVINGS			
<i>(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.)</i> Check one: <input type="checkbox"/> Under \$315 <input type="checkbox"/> \$622 - \$723 <input type="checkbox"/> \$316 - \$418 <input type="checkbox"/> \$724 - \$824 <input type="checkbox"/> \$419 - \$519 <input type="checkbox"/> \$825 - \$917 <input type="checkbox"/> \$520 - \$621 <input type="checkbox"/> \$918 and over		9. TOTALS 1 OR MORE SERVINGS OF EACH OF FOUR FOOD GROUPS.			
		1	1	1	1
		<input type="checkbox"/> YES <input type="checkbox"/> NO			
		2	2	4	4
		<input type="checkbox"/> YES <input type="checkbox"/> NO			
		10. TOTALS 3 OR MORE SERVINGS MILK/MEAT; 4 OR MORE VEG/FRUIT AND BREAD/CEREALS			

VIRGINIA EFNEP UNITS WHICH PARTICIPATED IN STATE PROGRAM EVALUATION



APPENDIX 2

APPENDIX 3



FAMILY BACKGROUND QUESTIONNAIRE

(To be completed by technician who has instructed the family)

Date completed _____ Technician No. _____ Family No. _____

Type of family participation (check one):

- Individual
 Individual and group
 Group only

NOTE: Your name will be kept confidential; your responses will be used in helping to evaluate and improve EFNEP for present and future clients, and employees of the program.

PART 1. Family Composition

Please provide the following information based on what you recall from when you worked with this family.

1. Status of homemaker (check one)
 - Married
 - Single parent - female
 - Single parent - male
 - Single female with live-in male partner
 - Single female
2. Homemaker pregnant? (check one)
 - Yes
 - No
3. Number of children age 0 - 5 years _____
4. Number of children age 6 - 13 years _____
5. Number of children age 14 years and older _____

Other adults residing in household (for Items 6 - 11, indicate whether you recall that person being present or not).

- | | (Check one) | |
|---|-------------|----------------|
| | PRESENT | NOT
PRESENT |
| 6. Parent of homemaker or spouse - female | ----- | ----- |
| 7. Parent of homemaker or spouse - male | ----- | ----- |
| 8. Other female relative | ----- | ----- |
| 9. Other male relative | ----- | ----- |
| 10. Female friend, nonrelative | ----- | ----- |
| 11. Male friend, nonrelative | ----- | ----- |



PART 2. Family Support for EFNEP

For items 12 through 15: Based on your experience with this family, how would you rate the following persons with regard to the homemaker's involvement in EFNEP?

- 1 = Opposed to EFNEP
 2 = Neutral or indifferent
 3 = Generally supportive of EFNEP
 4 = Strongly supportive of EFNEP
 N = Doesn't apply or don't know

(Please circle one)

12. Spouse or male partner	1	2	3	4	N
13. Children 13 years and older	1	2	3	4	N
14. Children younger than 13	1	2	3	4	N
15. Other adult(s) in home	1	2	3	4	N



PART 3. Family Roles/Responsibilities

- | | |
|------------------------|------------------------------|
| 1 = Homemaker | 5 = Child less than 13 years |
| 2 = Spouse or partner | 6 = Child 13 years or older |
| 3 = Other female adult | 7 = No one |
| 4 = Other male adult | 8 = Don't know |

Please use the above code numbers to indicate which household member was most responsible for:

(Circle one)

- | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 16. Deciding what food will be purchased | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 17. Making most other household decisions | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 18. Actually purchasing food | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 19. Preparing food for household | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 20. Earning money | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 21. Obtaining food stamps, WIC check or public assistance | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 22. Taking charge of food money or food stamps | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 23. Taking charge of other household money matters | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 24. Taking care of children | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 25. Doing housework (dishes, laundry, cleaning, etc.) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 26. Home repair/maintenance (includes yardwork) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |



APPENDIX 4

EXPANDED FOOD AND NUTRITION EDUCATION PROGRAM (EFNEP) QUESTIONNAIRE FOR HOMEMAKER

Date _____ Technician No. _____ Family No. _____

 NOTE: YOUR NAME WILL BE KEPT CONFIDENTIAL. YOUR ANSWERS WILL BE USED TO HELP IMPROVE THE PROGRAM FOR OTHER PEOPLE IN VIRGINIA.



PART 1. DIRECTIONS: USING THE FOLLOWING SCALE, HOW WOULD YOU RATE THE PROGRAM ACCORDING TO HOW MUCH YOU LEARNED IN THESE AREAS BELOW?

- 1 = DIDN'T LEARN ANYTHING
 2 = LEARNED SOME THINGS
 3 = LEARNED MANY THINGS
 4 = LEARNED AN ENORMOUS AMOUNT!
 N = DOESN'T APPLY

PLEASE CIRCLE ONE

- | | | | | | |
|---|---|---|---|---|---|
| 1. Why my family needs to choose the right foods to eat. | 1 | 2 | 3 | 4 | N |
| 2. What foods are in each of the basic food groups. | 1 | 2 | 3 | 4 | N |
| 3. Which foods my family should limit. | 1 | 2 | 3 | 4 | N |
| 4. How to get better food buys for my money or food stamps. | 1 | 2 | 3 | 4 | N |
| 5. How to feed my baby or child(ren). | 1 | 2 | 3 | 4 | N |
| 6. New ways to prepare food. | 1 | 2 | 3 | 4 | N |
| 7. Safe and clean ways to store food. | 1 | 2 | 3 | 4 | N |
| 8. Where our family can find other resources for food. | 1 | 2 | 3 | 4 | N |

PART 2. DIRECTIONS: USING THE FOLLOWING SCALE, HOW WOULD YOU RATE THE PROGRAM ACCORDING TO HOW MUCH IT HELPED YOU IN THESE AREAS BELOW?

- 1 = DIDN'T HELP AT ALL/NO CHANGE
 2 = HELPED A LITTLE
 3 = HELPED VERY MUCH
 4 = HELPED AN ENORMOUS AMOUNT!
 N = DOESN'T APPLY

PLEASE CIRCLE ONE

9. Me/my family members sick less often.	1	2	3	4	N
10. Me/my family members eating a greater variety of nutritious foods.	1	2	3	4	N
11. Eating fruits and vegetables every day.	1	2	3	4	N
12. Having milk or milk products every day.	1	2	3	4	N
13. Eating less "junk" foods and foods high in sugar, salt or fat.	1	2	3	4	N
14. Finding food specials/bargains.	1	2	3	4	N
15. Our money and/or food stamps stretching until the end of the month or pay period.	1	2	3	4	N
16. Reading labels on food packages and containers.	1	2	3	4	N
17. Feeding my baby.	1	2	3	4	N
18. Me/my family trying new foods and recipes.	1	2	3	4	N
19. Storing foods safely.	1	2	3	4	N
20. Finding other sources of food assistance.	1	2	3	4	N

PART 3. DIRECTIONS: USING THE SCALES BELOW, HOW WOULD YOUR FAMILY ACT IN THE FOLLOWING SITUATIONS?



- 1 = REFUSE OR DISAGREE
- 2 = NO OPINION OR SAY NOTHING
- 3 = OK OR AGREE
- 4 = PRAISE OR GIVE COMPLIMENT
- N = DOESN'T APPLY TO US

PLEASE CIRCLE ONE

21. I spend money or food stamps on foods that I learned about from the program. 1 2 3 4 N

22. I prepare a recipe that I learned from the program. 1 2 3 4 N

23. I talk to family about what we're going to eat for lunch or dinner. 1 2 3 4 N

- 1 = CRITICIZE OR SAY BAD THINGS
- 2 = NO OPINION OR SAY NOTHING
- 3 = SAY GOOD THINGS
- 4 = PRAISE OR GIVE HIGH COMPLIMENT
- N = DOESN'T APPLY TO US

24. Family is talking together about the program. 1 2 3 4 N

25. Family is talking with friends, neighbors or relatives about program. 1 2 3 4 N



PART 4. HOW WOULD YOU RATE THE FOLLOWING IN RELATION TO THE EXPANDED FOOD AND NUTRITION EDUCATION PROGRAM (EFNEP)?

PLEASE CHECK (✓) ONE COLUMN

	STRONGLY SUPPORT AND ENCOURAGE YOU BEING INVOLVED	GENERALLY SUPPORT YOU BEING INVOLVED	NEUTRAL OR DON'T CARE	DON'T WANT YOU TO BE INVOLVED	DOESN'T APPLY
26. SPOUSE OR PARTNER					
27. OLDER CHILDREN (13 YEARS OR OLDER)					
28. YOUNGER CHILDREN (YOUNGER THAN 13)					
29. OTHER ADULTS IN HOME					

PART 5. DIRECTIONS: USING THE FOLLOWING SCALE, HOW TRUE IS EACH STATEMENT FOR YOUR FAMILY?

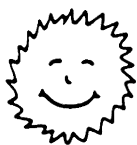
- 1 = VERY TRUE FOR MY FAMILY
 2 = SOMETIMES TRUE FOR MY FAMILY
 3 = NOT TRUE FOR MY FAMILY
 N = CAN'T ANSWER OR DOESN'T APPLY

PLEASE CIRCLE ONE

30. My child(ren) eat what they want no matter what I think they ought to eat. 1 2 3 N
31. My spouse or partner eats what (s)he wants no matter what I think (s)he should eat. 1 2 3 N
32. If I think it's important to eat certain kinds of foods, my family will usually eat what I recommend. 1 2 3 N
33. I consider it to be my responsibility to try to improve my family's eating habits. 1 2 3 N
34. I am able to make changes in what my family eats. 1 2 3 N



APPENDIX 5
CONSENT FORM FOR HOMEMAKER



I AGREE TO PARTICIPATE IN COMPLETING THIS QUESTIONNAIRE FOR THE EXPANDED FOOD AND NUTRITION EDUCATION PROGRAM (EFNEP). I KNOW THAT MY NAME WILL NOT BE USED, AND THAT MY ANSWERS WILL BE USED TO HELP IMPROVE THE PROGRAM FOR OTHER PEOPLE IN VIRGINIA.

YOUR SIGNATURE

TODAY'S DATE

SCORING TABLE FOR TWENTY-FOUR-HOUR DIET

To find the Twenty-four-Hour Diet score

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

The number to the right of this (in type style "74") is the Twenty-four-Hour Diet score. Enter the diet score at the appropriate "months in program" time on the homemaker's FOOD AND NUTRITION PROGRESSION RECORD.

0 MILK SERVINGS									1 MILK SERVING									② MILK SERVINGS																					
0 MEAT SERVINGS			1 MEAT SERVING			① MEAT SERVINGS			0 MEAT SERVINGS			1 MEAT SERVING			① MEAT SERVINGS			0 MEAT SERVINGS			1 MEAT SERVING			① MEAT SERVINGS															
Veg	Bread	Score	Veg	Bread	Score	Veg	Bread	Score	Veg	Bread	Score	Veg	Bread	Score	Veg	Bread	Score	Veg	Bread	Score	Veg	Bread	Score	Veg	Bread	Score	Veg	Bread	Score	Veg	Bread	Score	Veg	Bread	Score				
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
0	1	2	0	1	10	0	1	14	①	1	10	0	1	24	0	1	29	0	1	14	0	1	29	0	1	14	0	1	29	0	1	24	0	1	29	0	1	29	
0	2	4	0	2	12	0	2	17	0	2	27	0	2	37	0	2	37	0	2	17	0	2	37	0	2	17	0	2	37	0	2	32	0	2	37	0	2	43	
0	3	6	0	3	15	0	3	25	0	3	35	0	3	45	0	3	45	0	3	15	0	3	45	0	3	15	0	3	45	0	3	40	0	3	45	0	3	51	
0	4	8	0	4	23	0	4	29	0	4	39	0	4	49	0	4	49	0	4	23	0	4	49	0	4	23	0	4	49	0	4	44	0	4	49	0	4	59	
1	0	2	1	0	10	1	0	14	1	0	24	1	0	29	1	0	29	1	0	2	1	14	1	0	29	1	0	2	1	14	1	0	24	1	0	29	1	0	39
1	1	9	1	1	22	1	1	27	1	1	37	1	1	47	1	1	52	1	1	9	1	1	52	1	1	9	1	1	52	1	1	47	1	1	52	1	1	59	
1	2	11	1	2	25	1	2	35	1	2	45	1	2	56	1	2	61	1	2	11	1	2	61	1	2	11	1	2	61	1	2	56	1	2	61	1	2	67	
1	3	13	1	3	31	1	3	41	1	3	51	1	3	62	1	3	67	1	3	13	1	3	67	1	3	13	1	3	67	1	3	62	1	3	67	1	3	73	
1	4	21	1	4	37	1	4	47	1	4	57	1	4	68	1	4	73	1	4	21	1	4	73	1	4	21	1	4	73	1	4	68	1	4	73	1	4	79	
2	0	4	2	0	17	2	0	21	2	0	31	2	0	37	2	0	43	2	0	4	2	17	2	0	43	2	0	4	2	17	2	0	31	2	0	37	2	0	43
2	1	11	2	1	25	2	1	35	2	1	45	2	1	56	2	1	61	2	1	11	2	1	61	2	1	11	2	1	61	2	1	56	2	1	61	2	1	67	
2	2	13	2	2	31	2	2	41	2	2	51	2	2	62	2	2	67	2	2	13	2	2	67	2	2	13	2	2	67	2	2	62	2	2	67	2	2	73	
2	3	21	2	3	37	2	3	47	2	3	57	2	3	68	2	3	73	2	3	21	2	3	73	2	3	21	2	3	73	2	3	68	2	3	73	2	3	79	
2	4	29	2	4	41	2	4	51	2	4	61	2	4	72	2	4	77	2	4	29	2	4	77	2	4	29	2	4	77	2	4	72	2	4	77	2	4	83	
3	0	6	3	0	15	3	0	19	3	0	29	3	0	35	3	0	41	3	0	6	3	15	3	0	41	3	0	6	3	15	3	0	29	3	0	35	3	0	41
3	1	11	3	1	23	3	1	33	3	1	43	3	1	54	3	1	59	3	1	11	3	1	59	3	1	11	3	1	59	3	1	54	3	1	59	3	1	65	
3	2	13	3	2	31	3	2	41	3	2	51	3	2	62	3	2	67	3	2	13	3	2	67	3	2	13	3	2	67	3	2	62	3	2	67	3	2	73	
3	3	21	3	3	37	3	3	47	3	3	57	3	3	68	3	3	73	3	3	21	3	3	73	3	3	21	3	3	73	3	3	68	3	3	73	3	3	79	
3	4	29	3	4	41	3	4	51	3	4	61	3	4	72	3	4	77	3	4	29	3	4	77	3	4	29	3	4	77	3	4	72	3	4	77	3	4	83	
4	0	8	4	0	13	4	0	17	4	0	27	4	0	33	4	0	41	4	0	8	4	13	4	0	41	4	0	8	4	13	4	0	27	4	0	33	4	0	41
4	1	21	4	1	32	4	1	43	4	1	53	4	1	64	4	1	69	4	1	21	4	1	69	4	1	21	4	1	69	4	1	64	4	1	69	4	1	75	
4	2	13	4	2	41	4	2	52	4	2	63	4	2	74	4	2	79	4	2	13	4	2	79	4	2	13	4	2	79	4	2	74	4	2	79	4	2	85	
4	3	21	4	3	45	4	3	56	4	3	67	4	3	78	4	3	83	4	3	21	4	3	83	4	3	21	4	3	83	4	3	78	4	3	83	4	3	89	
4	4	29	4	4	49	4	4	59	4	4	69	4	4	80	4	4	85	4	4	29	4	4	85	4	4	29	4	4	85	4	4	80	4	4	85	4	4	91	

Source: Block et al., 1985, p. 144

CODE SHEET - EFNEP STUDY

COLUMN(S)	DESCRIPTION
<LINE 1>	
1 - 3	UNIT NUMBER
4 - 5	TECHNICIAN NUMBER
6 - 8	FAMILY NUMBER
9	TEACHING METHOD
	1 = INDIVIDUAL
	2 = INDIVIDUAL + GROUP
	3 = GROUP
FAMILY BACKGROUND QUESTIONNAIRE - PART I	
10	TYPE OF HOUSEHOLD
	1 = ONE PARENT
	2 = TWO PARENT; MALE + FEMALE
	3 = ONE PARENT; EXTENDED
	4 = TWO PARENT; EXTENDED
11	HOMEMAKER PREGHANT?
	0 = NO 1 = YES
12	NUMBER OF CHILDREN 0 - 5 YEARS
13	NUMBER OF CHILDREN 6 - 13 YEARS
14	NUMBER OF CHILDREN 14 + YEARS
	(FOR 12 - 14: 0 TO 9 WHERE 9 = 9 OR MORE)
FAMILY RECORD FORM	
15	DEMOGRAPHICS - RACE OF HOMEMAKER
	1 = WHITE 2 = NONWHITE
16	DEMOGRAPHICS - EDUCATION OF HOMEMAKER
	1 = 8TH GRADE OR LESS 3 = 11TH - 12TH GRADE
	2 = 9TH - 10TH GRADE 4 = BEYOND HIGH SCHOOL
17	DEMOGRAPHICS - PLACE OF RESIDENCE
	1 = FARM
	2 = TOWNS <10,000 & RURAL NONFARM
	3 = TOWNS/CITIES 10,000-50,000
	4 = SUBURBS OF CITIES >50,000
	5 = CENTRAL CITIES >50,000
18	PARTICIPATE IN USDA FOOD STAMP PROGRAM
19	PARTICIPATE IN WIC PROGRAM
20	PARTICIPATE IN PUBLIC ASSISTANCE OR SSI
	(FOR 18 - 20: 0 = NO 1 = YES)
21	DEMOGRAPHICS - MONTHLY INCOME
	1 = <\$315 5 = \$622-723
	2 = \$316-418 6 = \$724-824
	3 = \$419-519 7 = \$825-917
	4 = \$520-621 8 = \$918 & UP
FOOD RECALLS	
22	# SERVINGS MILK AT ENTRY
23	# SERVINGS MEAT AT ENTRY
24	# SERVINGS FRUIT/VEG AT ENTRY
25	# SERVINGS BREAD/CEREAL AT ENTRY
26 - 28	ENTRY FOOD RECALL SCORE

APPENDIX 7
CODE SHEET FOR SAS DATA ANALYSIS

29 0 SERVINGS MILK AT EXIT
 30 0 SERVINGS MEAT AT EXIT
 31 0 SERVINGS FRUIT/VEG AT EXIT
 32 0 SERVINGS BREAD/CEREAL AT EXIT
 33 - 35 EXIT FOOD RECALL SCORE
 36 0 SERVINGS MILK AT FOLLOW-UP
 37 0 SERVINGS MEAT AT FOLLOW-UP
 38 0 SERVINGS FRUIT/VEG AT FOLLOW-UP
 39 0 SERVINGS BREAD/CEREAL AT FOLLOW-UP
 40 - 42 FOLLOW-UP FOOD RECALL SCORE
 (FOR 22-25, 29-32, 36-39; 0 TO 9 WHERE 9 = 9 OR MORE)

FAMILY BACKGROUND QUESTIONNAIRE - PARTS 2 AND 3
 ITEMS 12-15 FAMILY SUPPORT FOR EFNEP - TECHNICIAN REPORT

43 SPOUSE OR MALE PARTNER
 44 CHILDREN 13 YEARS AND OLDER
 45 CHILDREN YOUNGER THAN 13
 46 OTHER ADULT(S) IN HOME
 (FOR 43-46:
 0 = DOESN'T APPLY OR DON'T KNOW
 1 = OPPOSED TO EFNEP
 2 = NEUTRAL OR INDIFFERENT
 3 = GENERALLY SUPPORTIVE OF EFNEP
 4 = STRONGLY SUPPORTIVE OF EFNEP)

ITEMS 16-26 FAMILY ROLES AND RESPONSIBILITIES
 47 DECIDING WHAT FOOD WILL BE PURCHASED
 48 MAKING MOST OTHER HOUSEHOLD DECISIONS
 49 ACTUALLY PURCHASING FOOD
 50 PREPARING FOOD FOR HOUSEHOLD
 51 EARNING MONEY
 52 OBTAINING FOOD STAMPS, WIC CHECK OR PUBLIC ASSISTANCE
 53 TAKING CHARGE OF FOOD MONEY OR FOOD STAMPS
 54 TAKING CHARGE OF OTHER HOUSEHOLD MONEY MATTERS
 55 TAKING CARE OF CHILDREN
 56 DOING HOUSEHORK
 57 HOME REPAIR/MAINTENENCE
 (FOR 47-57:
 1 = HOMEMAKER
 2 = SPOUSE OR PARTNER
 3 = OTHER FEMALE ADULT
 4 = OTHER MALE ADULT
 5 = CHILD YOUNGER THAN 13 YEARS
 6 = CHILD 13 YEARS OR OLDER
 7 = NO ONE/DOESN'T APPLY
 8 = DON'T KNOW)

QUESTIONNAIRE FOR HOMEMAKER

ITEMS 1-8 HOMEMAKER PERCEIVED EDUCATIONAL GAINS
 58 WHY FAMILY NEEDS TO CHOOSE RIGHT FOODS TO EAT
 59 WHAT FOODS ARE IN EACH OF THE BASIC FOOD GROUPS
 60 WHICH FOODS FAMILY SHOULD LIMIT
 61 HOW TO GET BETTER FOOD BUYS FOR MONEY/FOOD STAMPS
 62 HOW TO FEED BABY OR CHILD(REN)

63 NEW WAYS TO PREPARE FOOD
64 SAFE AND CLEAN WAYS TO STORE FOOD
65 WHERE FAMILY CAN FIND OTHER RESOURCES FOR FOOD
(FOR 58-65:
0 = DOESN'T APPLY OR NO RESPONSE
1 = DIDN'T LEARN ANYTHING
2 = LEARNED SOME THINGS
3 = LEARNED MANY THINGS
4 = LEARNED AN ENORMOUS AMOUNT!

ITEMS 9-20 - HOMEMAKER PERCEIVED ACTUAL BENEFIT
66 FAMILY MEMBERS SICK LESS OFTEN
67 FAMILY MEMBERS EATING GREATER VARIETY OF NUTRITIOUS FOODS
68 EATING FRUITS AND VEGETABLES EVERY DAY
69 HAVING MILK/MILK PRODUCTS EVERY DAY
70 EATING LESS JUNK FOOD/FOODS HIGH IN SUGAR, SALT, FAT
71 FINDING FOOD SPECIALS/BARGAINS
72 MONEY/FOOD STAMPS STRETCHING TILL END OF PAY PERIOD
73 READING LABELS ON FOOD PACKAGES/CONTAINERS
74 FEEDING BABY (OR CHILDREN)
75 FAMILY TRYING NEW FOODS/RECIPES
76 STORING FOODS SAFELY
77 FINDING OTHER SOURCES OF FOOD ASSISTANCE
(FOR 66-77:
0 = DOESN'T APPLY OR NO RESPONSE
1 = DIDN'T HELP AT ALL/NO CHANGE
2 = HELPED A LITTLE
3 = HELPED VERY MUCH
4 = HELPED AN ENORMOUS AMOUNT!

78 - 80 (BLANK TO FINISH FIRST LINE)

<LINE 2>

1 - 8 (REPEAT UNIT, TECHNICIAN AND FAMILY NUMBER AS IN LINE 1)

QUESTIONNAIRE FOR HOMEMAKER - CONTINUED

ITEMS 21-23 FAMILY SUPPORT OF EFNEP
9 SPEND MONEY/FOOD STAMPS ON FOODS LEARNED FROM EFNEP
10 PREPARE RECIPE LEARNED FROM EFNEP
11 TALK TO FAMILY ABOUT WHAT TO HAVE FOR LUNCH/DINNER
(FOR 9-11:
0 = DOESN'T APPLY TO US
1 = REFUSE OR DISAGREE
2 = NO OPINION
3 = OK OR AGREE
4 = PRAISE OR GIVE COMPLIMENT

ITEMS 24-25 FAMILY SUPPORT OF EFNEP - CONVERSATION
12 FAMILY TALKING TOGETHER ABOUT EFNEP
13 FAMILY TALKING WITH FRIENDS/NEIGHBORS/RELATIVES ABOUT EFNEP
(FOR 12-13:
0 = DOESN'T APPLY TO US
1 = CRITICIZE OR SAY BAD THINGS
2 = NO OPINION OR SAY NOTHING
3 = SAY GOOD THINGS

4 = PRAISE OR GIVE HIGH COMPLIMENT)

- 14 ITEMS 26-29 FAMILY SUPPORT OF EFNEP - HOMEMAKER REPORT
- 15 SPOUSE OR PARTNER
- 15 OLDER CHILDREN (13+)
- 16 YOUNGER CHILDREN (<13)
- 17 OTHER ADULTS IN HOME
- (FOR 14-17:
- 0 = DOESN'T APPLY OR NO RESPONSE
- 1 = DON'T WANT YOU TO BE INVOLVED
- 2 = NEUTRAL OR DON'T CARE
- 3 = GENERALLY SUPPORT YOU BEING INVOLVED
- 4 = STRONGLY SUPPORT AND ENCOURAGE YOU BEING INVOLVED

- 18 ITEMS 30-34 HOME PERCEIVED INFLUENCE WITH FAMILY
- 19 CHILDREN EAT WHAT THEY WANT NO MATTER WHAT HOMEMAKER THINKS
- 19 SPOUSE OR PARTNER EATS WHAT S/HE WANTS NO MATTER WHAT, ETC.
- 20 FAMILY WILL EAT WHAT HOMEMAKER RECOMMENDS
- 21 HOMEMAKER FEELS RESPONSIBILITY TO IMPROVE FAMILY FOOD HABITS
- 22 HOMEMAKER FEELS ABLE TO MAKE CHANGES IN FAMILY DIET
- (FOR 18-22:
- 0 = CAN'T ANSWER OR DOESN'T APPLY
- 1 = VERY TRUE FOR MY FAMILY
- 2 = SOMETIMES TRUE FOR MY FAMILY
- 3 = NOT TRUE FOR MY FAMILY)

*****ADDITIONAL DATA*****

- 23 TIME SPAN BETWEEN PRE AND POST RECALLS (TPP)
- 24 TOTAL TIME IN PROGRAM, OR TIME BETWEEN ENTRY AND GRADUATION (TTIP)
- 25 TIME BETWEEN GRADUATION AND FOLLOWUP (TGF)
- (FOR 23-25:
- 0 = NO FOLLOWUP (USED ONLY IN COLUMN 25)
- 1 = 0 - 6 MONTHS
- 2 = 7 - 12 MONTHS
- 3 = 13 - 18 MONTHS
- 4 = 19 - 24 MONTHS
- 5 = 25 - 30 MONTHS
- 6 = 31 - 36 MONTHS)
- 26 POST RECALL SAME AS GRADUATION DATE?
- 0 = NO 1 = YES
- 27 - 28 AGE OF HOMEMAKER AT PROGRAM ENTRY

NOTE: BLANKS LEFT IN OTHER THAN COLUMNS 78-80 MEAN THAT NO DATA IS AVAILABLE FOR THAT SPACE. *****

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the scanned document**