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I am submitting herewith a dissertation written by Marta Lynne Axelson entitled "The Effects of Changing Food Prices and Other Intervening Variables on Food Acceptance by the Elderly." I recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Home Economics.

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THE EFFECTS OF CHANGING FOOD PRICES AND OTHER INTERVENING
VARIABLES ON FOOD ACCEPTANCE BY THE ELDERLY

A Dissertation
Presented for the
Doctor of Philosophy
Degree
The University of Tennessee, Knoxville

Marta Lynne Axelson

December 1979

ACKNOWLEDGMENTS

The cooperation and assistance of many individuals generously were given for this study. The author wishes to express her sincere appreciation to:

The research participants who willingly shared their time.

Dr. Marjorie P. Penfield for her guidance, concern, and assistance in this study and throughout my graduate education.

Dr. Ada Marie Campbell, Dr. Jane Savage, and Dr. Roger Swagler for their assistance in the planning of this study and their suggestions regarding this manuscript.

The interviewers for their assistance in collecting the data for this study.

Tina Sekula for her assistance with this manuscript.

The author also is grateful for the financial assistance provided by the Department of Food Science, Nutrition, and Food Systems Administration and by the U.T. Agricultural Experiment Station.

ABSTRACT

The effects of changing food prices on the food habits of the elderly were studied. Information about the socio-cultural characteristics, food-related attitudes, and intervening variables was collected in order to predict food acceptance. Respondents were interviewed twice, seven months apart. Respondents also were asked to record types, amounts, and cost of foods purchased for a four-week period. Data were collected from March 1978 to March 1979.

Sixty-six individuals who were retired, living alone, and 60 years of age and older participated in the interview. Of the initial 66 participants, 52 completed the second interview. The respondents were predominantly female, widowed, white, and Protestant. The years of formal education ranged from 0 to 21. Income ranged from \$101-150 per month to over \$551. The majority lived in housing complexes for the elderly, either government sponsored or private in Knoxville, Tennessee.

Four food-related attitude factors were found: social-adventurous, frugal-utilitarian, qualitative-pleasurable, and nutritious-healthful. The respondents on the average reported visiting with their relatives approximately 42 times a year and with their friends over 100 times a year. The old-old (over 70 years of age) were as active as the young-old as measured with a social activity instrument.

The total expenditure per month for food changed from \$60.00 to 65.00; \$7.00 and 9.00 were spent on food away from home. Although total food expenditures did not differ over time, there was an upward trend. The expenditure by the respondents for food at the grocery store

was less than that suggested for the USDA's thrifty food plan. Most of the respondents' food dollars went for purchases of meat and meat substitutes, beverages, vegetables, fruits, and milk and milk products.

The regression models determined in this study explained 38-58% of the variation in food acceptance, defined as food expenditures and expenditures for fruits, meat and meat substitutes, and milk and milk products.

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CHAPTER I

INTRODUCTION

Over the past decade, food prices have risen more than the Consumer Price Index (CPI) for all goods and services. Food prices rose 10% in 1978, and since 1973, they have risen an average of 9% a year (USDA-ESCS, 1979). The sustained increases have made food prices a visible economic problem for many, including the elderly.

The newest and most rapidly growing minority in this country is the aging--65 years of age and over (Brotman, 1972). Ten percent of the American population, or more than twenty million people, are now over 65 years of age. By the year 2000, this figure could increase to 20% (Butler, 1975). One million of the elderly live in institutions of various kinds, fourteen million live with relative or friends, and five million live alone (Pelcovits, 1972).

Many elderly persons subsist on small, fixed incomes (Panel on Nutrition and Special Groups, 1974). The old are twice as likely as other age groups to be poor (Butler, 1975). Food, housing, transportation, and medical care account for the bulk of expenditures for the majority of older Americans (Elwood, 1975). On the average, the elderly spend 21.5% of their income on food as compared with 16.9% for all other age groups (Gallo and Boehm, 1978). The low income elderly spend an even greater proportion (30%) of their income on food, and one of their more serious problems is their inability to purchase an adequate diet (Panel on Nutrition and Special Groups, 1974). However, inadequate nutrition among the elderly is not caused solely by insufficient income.

Many factors may lead to dietary inadequacy or imbalance. To better understand the food habits of the elderly, it is necessary to develop a more detailed understanding of these many factors.

Everyday, people must procure, select, prepare, and consume food to sustain life. The manner in which they do this reflects complex interrelationships and interactions among the individuals, their culture, and the society in which they live. Food habits are the "means by which individuals, or groups of individuals, in response to social and cultural pressure, select, consume and utilize portions of the available food supply" (Guthe and Mead, 1945). The final outcome of food habits is nutrient intake and, consequently, the health and well-being of individuals (Giffit et al., 1972). To the nutritionist, the nutrient intake of an individual is of primary importance; however, people are primarily concerned with eating food, not ingesting nutrients (Pyke, 1968).

Figure 1 is a conceptual model illustrating factors affecting the translation of food preference into food acceptance. The model was derived from discussions and models presented by Lund and Burk (1969), Sims et al. (1972), Sims and Morris (1974), and Yetley (1974) in studies of the influence of various factors on the food selection and consumption and nutrient intake of various age and sex groups. Papers by Bayton (1966, 1977) and Steelman (1976) were considered also. Food preference is defined here as the food that an individual would choose to eat or, as some authors would define it, food choice. Food acceptance can be defined as the actual types and amounts of foods selected and consumed. For this study, food acceptance also will be explained by food expenditures, meal and snack patterns, and shopping patterns.

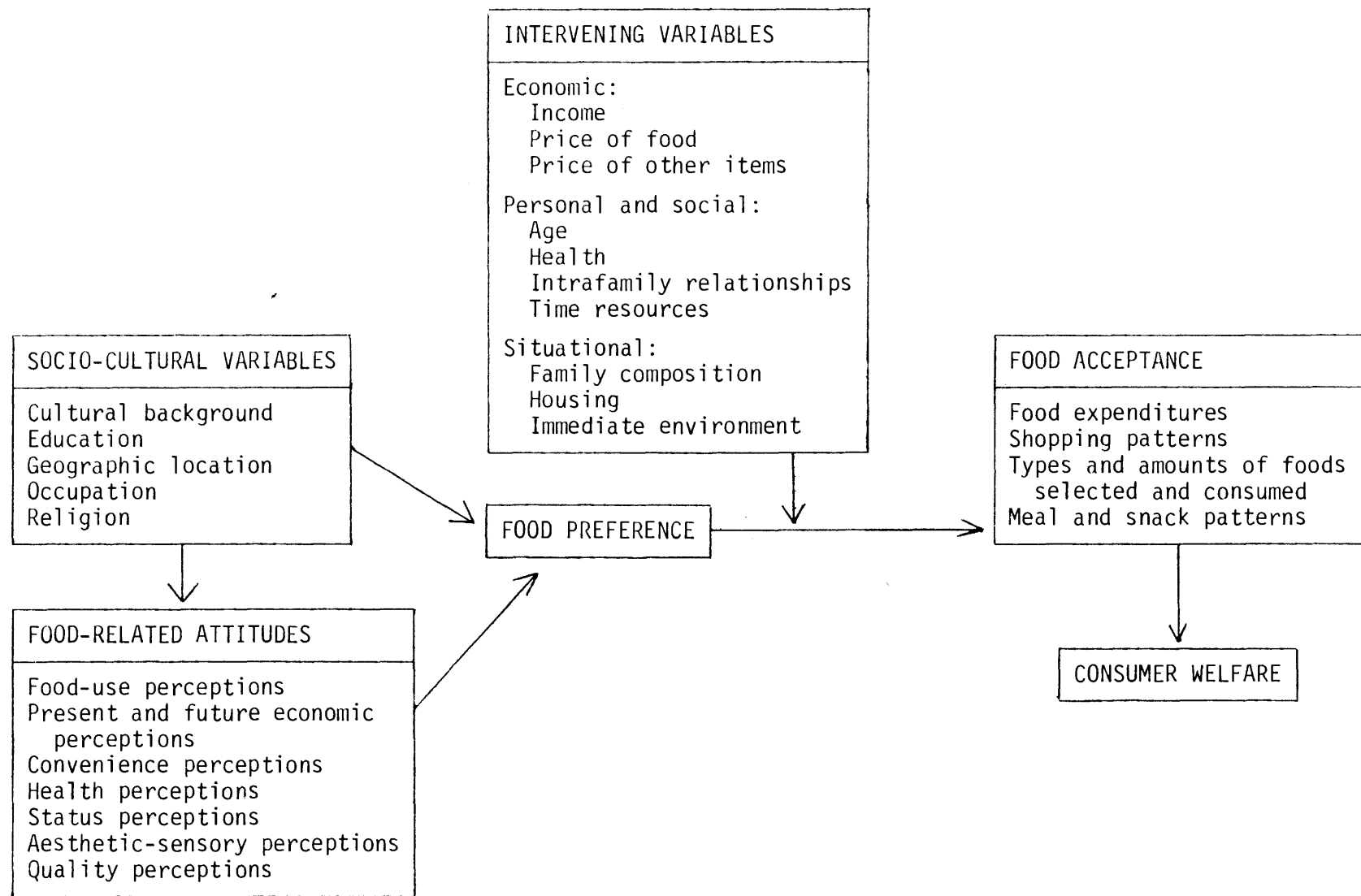


Figure 1. Conceptual model illustrating factors affecting the translation of food preference into food acceptance.

The model depicts a generalized concept of food-related behavior and some influencing factors. It is difficult, however, to explain the food-related behavior of the elderly because at the present time a paucity of information exists about their food habits. No rigorous research has been conducted to investigate the impact of inflation on their food habits. The results of basic dietary status research of the elderly would be more meaningful if information could be provided on daily and weekly food-use patterns (Howell and Loeb, 1969). If public policy makers are to be effective in legislating food and nutrition programs and governmental agencies effective in creating guidelines for these programs, there must be research that clearly and accurately defines the current food selection and behavior of consumers in the target audiences. Educators also need to know when changes occur in order to provide relevant programs.

Therefore, this study was undertaken to investigate the food-related behavior of retired persons, 60 years of age and over. Food-related behavior of individuals is very complex, and no one study can be designed to take into account all the possible factors that influence the translation of food preference into food acceptance. For this reason, individuals living alone were chosen as the target population because it was assumed that there is a more direct relationship (in spite of waste and food preparation methods) between food purchased and food consumed, and that intrafamily decision making influences are eliminated.

The objectives of this study were:

1. to determine the effect of changing food prices and other intervening variables on food use by the elderly;
2. to develop models for prediction of food expenditures and use as affected by several intervening variables including changing food prices; and
3. to develop a system for classifying foods consumed by the elderly on the basis of food uses and prices of various food items.

CHAPTER II

REVIEW OF LITERATURE

In an investigation of the food-related behavior of the elderly, a knowledge of some group characteristics facilitates an understanding of the current literature. This knowledge also is necessary for the understanding and interpretation of this study.

In Knox County, Tennessee the proportion of the population 60 years of age and older is 14.2% and the proportion of people 65 years and older is 9.8% (U.S. Dept. of Commerce, 1972). For the state of Tennessee, the proportion of persons 65 years and older is 10.5% (DHEW-ODH, 1976).

In the nation, at ages 65 to 74, there are 130 women per 100 men; after 75, there are 160 women per 100 men. The average for the total 65 and over group is 140 women per 100 men (Brotman, 1972). Most older men are married (79%) and most older women are widows (53%). There are more than five times as many widows as widowers (DHEW-OHD, 1976).

Butler (1975) discusses what he calls the "myth of aging" or the idea of chronological aging. There are great differences in the rates of physiological, chronological, psychological, and social aging within a person and from person to person. Physiological indicators show a greater deviation from the mean in old age than in any other age group, and this is true of personality as well. Older people actually become more diverse rather than more similar with advancing years. The picture of the decrepit oldster is so gross an exaggeration as to be completely misleading. The overwhelming majority of older people can easily manage

in the community if society permits. They could manage even better if society would encourage their activity through the provision of essential services (Brotman, 1972).

There is a lack of reliable information concerning the food-related behavior of the elderly, or for that matter, the food-related behavior of any group. Therefore, the discussion of the literature will not be exclusively about the elderly, and will follow the arrangement of the components presented in the conceptual model (Figure 1, p. 3).

I. Socio-cultural Variables

Cultures communicate what they are and what they do through the use of food. People use food for nourishment, to express friendliness and maintain interpersonal relationships, to promote and maintain their social status, to cope with stress and tension, to influence others behavior, and for religious and creative expression (Leininger, 1969; Lowenberg et al., 1979). Differences in food practices are related to cultural values of a particular group (Leininger, 1969). Cultural values determine preferences and choices in food selection, production, and consumption by an individual or group, and these cultural values are neither easily forgotten nor highly subject to change.

The specific items actually designated by a group as edible material are limited by what is available (Giffet et al., 1972). However, no society ever uses all the potentially edible material in its environment as food (de Garine, 1972; Lowenberg, 1970). Food preferences are the result of food availability, climate, geographical conditions, and technological development (Dickens, 1965). Explanations of why people

eat what they eat are very complex and involve both cultural and psychological aspects as well as transportation, availability of food in a particular area, and economic considerations (Lewin, 1943). Much individual variation occurs in the food practices of the members of a more technologically advanced society because there are many possibilities from which to select. Any alteration of the environment tends to be accompanied by a change in the foodways. Adaptation must take place, since the failure to do so may result in deterioration of nutrient intake. The actual changes in food habits vary with the type of environmental change and the nature of the culture (Giffert et al., 1972).

Individuals generally adopt the food habits that are practiced by the social group to which they belong, with the family playing the important role in the development of the food habits (de Garine, 1972). Even though a person's socio-cultural environment has had its own unique effect on the individual, such socio-cultural variables as education, occupation, and religion do act as influences. With an increasingly monetarized economy, the monetary income also becomes an important explanatory variable in the evolution of food-related behavior--it promotes good eating as an exterior sign of wealth and a symbol of status (de Garine, 1972).

II. Food-related Attitudes

People's attitudes toward food as both a cultural and social object are influenced by their socio-cultural environment. As a cultural object, food is surrounded by knowledge, beliefs, and customs shared by societal members; as a social object, it is surrounded by behavior shared with other people (Steelman, 1976). Rokeach (1968)

defined an attitude as "a relatively enduring organization of beliefs around an object or situation predisposing one to respond in some preferential manner." The resulting behavior toward an object is the function of at least two attitudes--attitude toward the object and attitude toward the situation in which the object is encountered. Attitudes may be conceptualized as having three components: affect, cognition, and behavior (Zimbardo et al., 1977). The affective component consists of a person's emotional response to the object; the cognitive component consists of a person's beliefs about, or factual knowledge of, the object; and the behavioral component involves the person's overt behavior toward the object.

The primary difference in the two definitions of an attitude is that Rokeach (1968) views an individual's behavior as a result of attitudes, whereas Zimbardo et al. (1977) view behavior as an integral part of an attitude. The conceptual model in this study reflects Rokeach's (1968) concept of attitudes.

Attitudes regarding food have been described or studied by a number of investigators. Bayton (1966) listed seven categories of perceptions that consumers may use in selecting food: nutrition, economic, sensory-aesthetic, personableness, appropriateness, convenience, and health apprehensions. Similarly, Steelman (1976) listed six attitude indexes: propensity to change, convenience, frugality, concern for health, sociability, and concern for social status.

The connotative or implied meanings of foods were measured by Fewster et al. (1973) to identify underlying dimensions of meaning as a manifestation of attitude. A theoretical assumption underlying that study is that food is used in communication and people are assisted

through connotative meanings in communicating perceptions, beliefs, and attitudes about foods to others in family situations and larger social groups. Four major factors were generated: evaluation, communication, nutrition, and health apprehension.

By going beyond the typical mode of demographic classification and using a functional segmentation classification system, Belto (1966) suggested that food use could be differentiated by attitudes, life styles, interests, and values, since these attributes generate varying subjective product requirements. Belto suggested food choice, purchase decisions, frequency and occasion of serving, and food volume could be better predicted by defining basic consumer food requirements in areas of nutrition/health, sensory, convenience, social-psychological, and value (qualitative X price), and determining the interaction of these basic requirements.

Yetley (1974) employed the survey method to obtain data on factors affecting the food-related behavior of young married couples with at least one child living in the home. Instead of using food as the attitude object, she used 30 statements representing value-attitude orientations toward risk, modernism, mastery, and means. The value-attitude orientations attempted to measure various dimensions of the individual's approaches to food-related decisions.

A more comprehensive and systematic social-psychological approach to food-related behavior consisting of five parts was proposed by Bayton (1977). First, the "structure" of the needs, expectations, and perceptions of consumers that surround a product-class (e.g. food) should be determined. Within the given product-class, consumers then would categorize individual components. By combining results from

these parts, preference patterns that operate among consumers could be determined. Consumers then would be grouped in terms of similar psychological characteristics with respect to the product-class. The psychological segments then can be inspected to determine their variance in demographic characteristics. Schutz and coworkers (1977) did show, in fact, that psychographic variables play a significant role in the prediction of consumer food-related behavior.

Schutz and coworkers (1975) feel that although there has been a long history of developing food and food-use classification systems, these created systems meet the special needs of the classifier rather than reflecting the way the actual food users would make the groupings. A questionnaire consisting of a matrix of foods and food uses was constructed to determine appropriateness of foods for various uses. The matrix was completed by respondents in four cities. Schutz et al. found five food factors: high-calorie treat, specialty meal items, common meal items, refreshing health foods, and inexpensive filling foods; and four food-use factors: utilitarian, casual, satiating, and social.

A model for food selection was designed to apply in situations where the food is available and economically accessible (Reaburn et al., 1979). Nine food-selection determinants were identified: satiety, tolerance, taste, familiarity, health belief, price, convenience, prestige, and knowledge. Three of the nine food-selection determinants were studied; price, convenience, and prestige were found to be related to food-use frequency in 14 of the 52 foods studied.

With the food-selection model described by Reaburn et al. (1979), Lau et al. (1979) attempted to measure attitudinal profiles of 10 foods

and to determine the dominant factors influencing their use frequency. Taste, tolerance, and price were positively correlated to frequencies of five or more of the foods studied. Fewer significant correlations were found for the food-selection determinants health belief, familiarity, prestige, and convenience.

Studies of health-related perceptions of food by the elderly have been reported. Roundtree and Tinklin (1975) explored the food beliefs and practices of the elderly. About 95% of the individuals knew that a balanced diet is composed of the Basic Four Food Groups and that the best way to lose weight is to eat a balanced diet low in calories. However, a comparison of food beliefs with actual practices revealed that respondents did not practice always what they believed. Approximately one-third of all the respondents believed everyone should take vitamin or mineral supplements to remain healthy and energetic, and 90% believed that natural vitamins are better than synthetic. Nevertheless, 50% of the total population used supplements. Twenty-six percent indicated they believed that prepared cereals provide only empty calories and 60% believed that whole-grain cereals are always more nutritious than enriched white-flour products. In contrast, 60% reported using prepared cereals and only 9% used prebaked whole-grain bread or rolls daily.

Age was found to be inversely related to valid nutritional opinions and practices and to education (Jalso et al., 1965). Respondents with the more "faddist" beliefs generally had lower incomes and more rigid personalities.

Nutritional knowledge and attitudes in relation to the nutrient intakes and adherence to food fads of 64 elderly persons were examined

(Grotkowski and Sims, 1978). Nutrition knowledge and its self-evaluation were found to be positively correlated with socio-economic status, nutrient intakes, and the attitude that "nutrition is important" and negatively correlated with misconceptions about vitamin/mineral supplements and weight reduction. The more an individual adhered to food fads, the more likely that he/she believed foods and supplements could be used as medicine.

The elderly in the Middle Tennessee area who participated in an extensive study on their food habits and attitudes considered vegetables to be "good" for health and foods high in fat and sugar to be "bad" for a person's health (Todhunter et al., 1974). The majority believed their own diet was good and there were no foods that should be prohibited to older people. The use of "health" foods was negligible and only 15% of the group used any vitamin or mineral supplement. The reason most often given for reported changes in eating habits was for health. A number of respondents felt foods had changed and had "less taste" than before.

III. Intervening Variables

The socio-cultural attributes and food-related attitudes shape the food preferences of an individual; however, the translation of those food preferences into food acceptance is modified by a number of intervening variables. These variables as outlined in the conceptual model (Figure 1, p. 3) have been subdivided into three groups: economic, personal and social, and situational.

The income of elderly persons living alone or with nonrelatives is skewed to the lower end of the income distribution. The proportion

below the poverty level is much higher for elderly persons living alone or with nonrelatives (32%) than for those living in families (9%) (DHEW-OHD, 1976).

According to Engel's law, when there is an increase in personal income, there is a decrease in the relative importance of the sum of money spent on food purchases as compared to other expenses, but it may result in an absolute increase in food expenditures (Burk, 1970; de Garine, 1972; Swagler, 1975). As personal income increases, a wider choice of food is within the realm of possibility. A few common trends in dietary patterns can be identified; for example, a greater proportion of kilocalories provided by fats and a decrease in those provided by carbohydrates (a decrease in the starchy staple foods may be accompanied by an increase in sugar products); and an increase in the proportion of kilocalories provided by animal proteins (Yudkin and McKenzie, 1964).

The relationship between dietary patterns and income is most useful when evaluated within a country and when comparisons among different socio-economic strata are made (de Garine, 1972). Higher incomes do not necessarily result in an adequate diet. Nevertheless, it is the more privileged socio-economic classes that have the advantage in realizing ideal nutritional patterns (de Garine, 1972; Yudkin and McKenzie, 1964). The 1965 United States Department of Agriculture (USDA) survey of households indicated that 90-95% of the households consumed food providing the Recommended Dietary Allowances (RDA) for protein, iron, thiamin, and riboflavin, but only 70-75% of the households had diets providing the allowances for calcium, vitamin A, and ascorbic acid. The percentage of households consuming "good" diets

increased markedly with increased income. Poor diets were consumed four times more frequently among households with incomes under \$3,000 than among households with incomes of \$10,000 and over (Adelson, 1968).

In analyzing data from the 1965-1966 nationwide household food consumption survey, Adrian and Daniel (1976) found all nutrients except carbohydrate significantly and positively related to disposable income; and nutrient consumption responsiveness to income was greatest in the \$8,000-12,000 income range. A comprehensive survey of 4,000 south-eastern families was conducted to study the relationship between total weekly grocery expenditures and socio-economic characteristics: income per capita was found to be the most important variable. Income accounted for 54.5% of the variation in weekly per capita grocery expenditures (Stubbs et al., 1972).

In a study of elderly people living at home, nutritional adequacy was found to be positively related to income and negatively related to the age of the homemaker, and a considerable number of diets was short in calcium and ascorbic acid (Le Bovit, 1965). After evaluating the available literature on nutrition in aging, Shock (1970) concluded that nutritional adequacy increased with increasing income.

Nutritional practices and status of 104 middle class participants in the Age Center in Boston were assessed (Davidson et al., 1962). No relationship between dietary intake and dental status was observed, but those living in social isolation and on low incomes had lower intakes than those living gregariously and on more adequate incomes. The nutrient intake of 283 Old Age Survivor and Dependents Allowance recipients in Rochester, New York, was positively related to income and negatively related to the age of their home (Le Bovit, 1965). Guthrie

et al. (1972) found nutrient intake also negatively related to age and positively related to income of rural, elderly persons in Pennsylvania.

The elderly living in an apartment complex generally had lower incomes and a lower level of formal education than the elderly living in homes in the surrounding community (Roundtree and Tinklin, 1975). The nutrition knowledge of both groups was generally low; however, the people who lived in apartment complexes held more food-faddist beliefs than non-residents.

Elderly persons were interviewed in an effort to identify the factors which they perceived to be important to the quality of their lives (Abdel-Ghany, 1977). They were asked to assess their housing, health, social relations and activities, life satisfaction, independence, and economic condition. The results of the study indicated that certain social, economic, and physical factors were highly related to the perception of the quality of life. Factors relating to social and physical isolation and economic achievement were the most salient factors of life satisfaction.

The elderly respondents whose physical environment was isolated were characterized by general feelings of unhappiness, little anticipation of the future, and self-assessed poor health. The respondents who had money income and assets valued below the mean of the sample and had less education than the other people in the sample were dissatisfied with both the heating and the electrical lighting in all the rooms of the dwelling. In explaining the variability regarding dissatisfaction with the quality of life, the economic factor was considered to be second in importance to the social and physical isolation factor. This

might be due to increases in Social Security payments and other social pension and welfare programs for the elderly.

Clancy (1975) looked at media exposure and social participation as two factors which may have an effect on food consumption patterns since elderly persons tend to watch more television than any other age group. Forty-two of the 47 respondents watched television daily for an average of five hours. Television viewing was related to an increase in snack food consumption, but not to food consumed at meals.

Persons with higher social participation scores had significantly better diets. Dietary intake also was positively related to education and education was highly correlated with social participation. There was a positive correlation between social participation and frequency of looking at magazines, but no relationship of social participation to television viewing.

The elderly who live alone are commonly considered a particularly isolated group in our society (Shanas, 1979). However, the majority are within a few minutes of a child. If a person is childless, often brothers, sisters, nephews, and nieces assume the obligations of children. In contemporary American society, the family does not reject its old people. "The truly isolated old person, despite his or her prominence in the media, is a rarity in the United States" (Shanas, 1979).

IV. Food Acceptance

Food acceptance as defined in this study's model (Figure 1, p. 3) has been investigated only recently. The majority of research has been concerned with estimation of nutrient intake.

Gallo and Boehm (1978) compared food purchasing patterns of elderly households with the patterns of households in other age groups. The elderly spent nearly 22% of their income on food as compared to approximately 17% for all other age groups. Elderly persons who were eligible for food assistance spent 36% of their incomes for food as compared to 16% for persons not eligible (Guthrie et al., 1972).

The elderly persons who were living alone and were eligible for food assistance spent on the average \$4.80 per week for food. The financially better off elderly living alone spent on the average \$9.10 per week (Guthrie et al., 1972). In Middle Tennessee, approximately 50% of the elderly living alone spent \$5-10 per week for food; about 20% spent less than \$5 per week; and 25% spent from \$10 to 15 per week (Todhunter et al., 1974). Le Bovit (1965) found that elderly persons living alone spent an average of a little over \$8.00 per week. This amount exceeded the USDA's low-cost plan at the time. The elderly spend more on food prepared at home than any other age group and considerably less on food purchased away from home (Gallo and Boehm, 1978).

The elderly allocated their food dollar differently as compared with other age groups. They spent a greater proportion on fresh fruits and vegetables and less on red meats, prepared foods, beverages, and dairy products (Gallo and Boehm, 1978). There were no differences between the lower and higher income elderly in the frequencies of consumption of bread, eggs, milk, and vegetables; however, the lower income persons did consume less meat (Guthrie et al., 1972).

The majority of elderly person shopped at supermarkets (Roundtree and Tinklin, 1975; Todhunter et al., 1974). Mason and

Bearden (1978) found that 90% of the elderly respondents in their survey purchased food at least once a week. The elderly shopper was alert and cost-conscious, even though coupons were not frequently used. The older consumer did not find shopping to be a burden; in fact, shopping appeared to be a source of pleasure and recreation.

Meal patterns were discussed by both Todhunter et al. (1974) and Pao (1971). Both reported that the predominant U.S. pattern of three meals a day was the most frequently utilized (Howell and Loeb, 1969). Breakfast was eaten regularly by a large majority of both groups, and the use of soft drinks was negligible. Snacking was less frequent among persons over 74 years of age than in the group 65-74 years. Coffee was the most popular snack item (Pao, 1971).

A 24-hour dietary recall study was made of 3,500 persons (Pelcovits, 1972). One-fourth of the elderly persons ate fewer than three meals a day. Of these people, approximately one-half ate breakfast and dinner; one-fourth ate breakfast and lunch; and the remainder ate lunch and supper or only one meal a day.

V. Consumer Welfare

The nutrient intake of the elderly population is the result of each individual's response to the influences of many variables. A review of dietary status studies reflects the great diversity of the elderly population. This diversity is an excellent example of Butler's (1975) observation: as people grow older, they become more dissimilar.

Beauchene and Davis (1979) and O'Hanlon and Kohrs (1978) attempted to assess the nutritional status of the elderly population living in the United States by summarizing available dietary studies

and surveys. Difficulty was encountered in the evaluation of the studies because of differences in methodologies used; differences in standards used to measure adequacy of nutrient intakes; age and sex differences (Beauchene and Davis, 1979; O'Hanlon and Kohrs, 1978); and differences in the economic status, social environment, and genetic backgrounds of the subjects (Beauchene and Davis, 1979).

Kilocalories and calcium were found most often to be deficient in the diets of older persons (O'Hanlon and Kohrs, 1978). Ascorbic acid, thiamin, riboflavin, niacin, and protein were nearly always found to be adequate. It is apparent from the review that the adequacy of vitamin A and iron intakes varied considerably among the studies.

To interpret the available data of three federally sponsored surveys and several smaller studies, Beauchene and Davis (1979) calculated the mean weighted daily intakes and the ranges of nine nutrients and with their standard (two-thirds of the 1974 RDA's) evaluated the adequacy of the nutrient intakes. The consumption of kilocalories was generally inadequate even though obesity often was found in the elderly. Protein always was consumed in adequate amounts. Vitamin A, thiamin, ascorbic acid, niacin, riboflavin, calcium, and iron were judged to be low in the diets of a large percentage of the elderly. Nutritionally inadequate diets were found most often among the elderly who were female, black, of low income and/or living in institutions.

A longitudinal study begun in 1948 of age and cohort influences on dietary patterns was done on 35 women, born from 1873 to 1931 (Garcia et al., 1975). With increasing age, the women reduced their intake of fat but increased their intake of calcium. No significant

changes were found in dietary intake of kilocalories, protein, carbohydrate, iron, thiamin, niacin, vitamin A, and ascorbic acid.

Mean intakes of niacin, riboflavin, calcium, and protein were significantly different among cohorts; the younger the cohort, the higher the mean intake. Garcia et al. (1975) concluded that food patterns do not change significantly from middle to old age.

CHAPTER III

METHODS

I. Subjects

Sample Procurement

The participants in the study were retired individuals, 60 years of age or older, who lived alone and did not participate in any meal programs. Individuals participating in the Food Stamp Program were included. Volunteers were recruited from a number of sources.

The Assistant Director of the Knoxville Community Development Corporation (KCDC) was asked for permission to contact the elderly residents of government sponsored housing complexes: Cagle Terrace, Isabella Towers, Love Towers, and Northgate Terrace. Permission was granted, contingent upon working through the manager of each complex. The manager of Westview Towers, a private housing complex for the elderly with limited government subsidy, also gave permission to contact the residents.

After permission to contact residents was obtained from the individual housing complex managers, residents were contacted by letter. Letters containing an explanation of the study (Appendix A), a statement from the manager indicating that the project was legitimate and participation was voluntary (Appendix A), and postcards were placed on the doors of the units in each complex. Approximately 1260 people were contacted and 66 postcards indicating interest were returned. Forty-two of the 66 interested residents agreed to be participants in the study after they were contacted personally.

Because the recruitment of individuals from the housing complexes did not give the desired number of participants for the study, a list of all organizations for the elderly in the area was secured from the Office of Aging in Knoxville, Tennessee. The presidents of the Knoxville chapters of the American Association of Retired Persons (AARP) and of church sponsored clubs for the elderly were contacted about the study (Appendix A). The investigator attended the meetings of four chapters of AARP and of six church sponsored clubs to recruit volunteers. Of an estimated 600 eligible individuals in the clubs, an additional 24 agreed to participate. Volunteers also were recruited by individual reference.

Description of the Sample

The total number of respondents completing the first interview was 66. Fifty-two (78.8%) of the respondents completed the second phase of the interview schedule. The average age of respondents was 71.7 ± 6.6 years, and the average years of formal education was 11.7 ± 4.3 with a range from 0 to 21. The majority of the respondents were female. Incomes of the respondents ranged from \$101-150 to over \$551 per month.

II. Data Collection

The data were collected from March 1978 through March 1979. A panel design, which is any survey situation in which the same set of respondents is interviewed at two different times, was employed in this study (Denzin, 1970). The data were collected in two phases, seven months apart. Each phase of data collection consisted of a

personal interview by a trained interviewer. In addition a diary was kept by those participants who were willing to do so.

The interviewers were trained as a group by the researcher. The interview schedule and diary were explained in detail and the interviewers were instructed in how to answer questions regarding the study so as not to prejudice the respondent.

The study was reviewed and approved by the Departmental and University Committees on Research Participation. The project consent form (Appendix B) was read to each participant, and his/her signature was obtained before the interview proceeded.

III. Instruments

Instruments were independently developed to obtain information about the socio-cultural variables, food-related attitudes, intervening variables, and food acceptance of the respondents. The interview schedules were pretested in an effort to identify ambiguous questions. The investigator interviewed individuals who would qualify for participation in the study.

First Interview

Each respondent was asked to give socio-cultural information pertaining to place of birth, religion, marital status, and education in items 1-2 and 5-10 (Appendix B). Items 38-137 and items 146-148 provided information on the respondent's food-use, economic, convenience, health, status, aesthetic-sensory, and quality perceptions. The list of attitude statements (items 38-137) was composed of Steelman's (1976) statements that were adapted to pertain to a single-membered household

and of statements suggested by a committee of food science graduate students. The students were asked to participate on the committee because of their knowledge of foods and because most lived alone and thus had an empathetic perspective.

Information on three subgroups of intervening variables was obtained. Items 11-16, 36, 37, and 142-144 were designed for collection of economic information. Items 4, 17-31, 138, and 139 provided information on the personal and social variables. Finally, items 3, 32-35, 140, 141, and 145 were developed to elucidate the situational variables (Appendix B).

Items 146-148 questioned the respondent's past, present, and future behavioral intentions relating to food due to food price increases (Lewin, 1943).

Second Interview

In an effort to assess the respondent's perception of food price changes, the influence of food price changes on food use, and the possible influence of the previous interview, items 11-13 were developed (Appendix B).

Items 1-3 and 5-10 were included to measure current economic status. Item 4, the social activities instrument developed by Lawton (Undated), provided additional personal and social information.

To reflect the way that the participants generate groupings as to foods and food uses rather than the researcher's personal perception, the food matrix designed by Schutz et al. (1975) was left with the respondent to complete following the second interview. The matrix consisted of 56 foods and 48 food uses. The respondent was asked to

complete the matrix using a 7-point scale ranging from 1 (never appropriate) to 7 (always appropriate) (Appendix B, Table 42).

Diary

Respondents completing diaries, seven months apart, provided information on food acceptance over time. The respondents recorded: 1) the type, amount, and cost of foods purchased; 2) where and when they purchased the food; 3) where and how much they spent on food eaten outside the home; 4) how many times they ate as a guest; and 5) any gifts of food received in four one-week diaries. Pages were included also for the respondents to record when and what they ate on Wednesday and Saturday of the first week to discern meal and snack patterns. Instructions were included in each diary and the pages returned weekly in prepaid envelopes to the investigator (Appendix B).

Estimation of Food Price Changes

Nine hundred and six food items were priced monthly at a nationally owned supermarket in Knoxville, Tennessee. The food items were divided into 16 food categories and price fluctuations were examined. The categories were 1) appetizers, 2) beans, 3) beverages, 4) flour products, 5) breakfast foods, 6) cheese, 7) condiments, 8) desserts, 9) fats and oils, 10) jams, jellies, sugar, and syrups, 11) milk and milk products, 12) prepared meal items, 13) rice, 14) fruits, 15) vegetables, and 16) meat and meat substitutes (Appendix C, Table 43).

Serving sizes were assigned to items, and for items for which a serving size seemed inappropriate, a unit size was assigned (Appendix C, Table 43). For each food item, price per serving or

unit was calculated on the basis of the assigned serving or unit size. Items were assigned then to a price category of high, medium, or low. Price categories were determined by arbitrarily dividing the range of price per serving or unit in each food category into equal thirds (Lau et al., 1979). The price per serving or unit divisions were kept constant throughout the duration of the study (Appendix, Table 44). This allowed foods that changed in price to be assigned to a different category when appropriate. Seasonal price fluctuations of foods were thus taken into account. To calculate overall food price changes, the prices per serving or unit costs of all the 906 items were summed for each month and differences calculated. The food price changes were calculated also for each food category.

IV. Data Reduction and Statistical Analyses

Frequency distributions were generated for all descriptive data in order to provide a profile of the sample population. Chi-square and t tests were used to determine if statistical differences existed, between age groups. To elucidate changes in individuals' food habits between interviews, the paired t test was used.

To identify underlying food-related attitudes, the responses to all items of the attitude statements were factored by principal component solution and a Varimax orthogonal rotation of the factor matrix. All items with factor loadings of less than ± 0.400 were eliminated and the factor analysis was performed again. Any factor generated which had less than five items with factor loadings of more than ± 0.400 was ignored. The resultant six factors were examined. The first four factors could be interpreted and labeled.

Indexes for each respondent were calculated by multiplying the response score 1, 2, 3, 4, or 5 for each of the first five statements of the factor by the appropriate factor loading. The sums of the products yielded a total of four indexes for each individual. Cronbach's alpha for each factor was calculated as a test of reliability (Cronbach et al., 1972).

Three additional indexes were calculated for each respondent. By summing responses to items 21, 24, and 25 of the questionnaire, a relatives index was generated. Responses to items 27, 30, and 31 were summed to give a friends index. These indexes were created to represent the amount of social interaction with relatives and friends. A social activity index was generated by summing the responses to item 4 of the second questionnaire to represent a general level of personal and social activity.

Regression equations were computed to analyze the variables used to predict food use and expenditures. A stepwise regression procedure with minimum R^2 improvement technique was used. The predictor variables used in all equations were 1) years of formal education, 2) age, 3) income, 4) amount of medical bills per month, 5) amount of medical insurance payments per month, 6) relatives index, 7) friends index, 8) social activity index, 9) number of visits to the grocery store per week, and 10) each of the four attitude indexes. The criterion variables used were 1) total expenditure for food per month, 2) the estimated and actual food expenditures at the grocery store per month, 3) the estimated and actual food expenditure for food away from home per month, and 4) the percentage of the respondent's food dollar spent for each of the six food groups: beverages, flour

products, fruits, vegetables, meat and meat substitutes, and milk and milk products.

It was recognized that data for regression analysis should be metric; however, income, social activity index, and attitude indexes were ordinal-level data. According to Kerlinger (1973) social-psychological ordinal-level measurements can be treated with caution as interval-level measurements when applying interval-level statistical analysis.

Statistical analyses were performed with the use of the computer programs SAS (Barr et al., 1976) and Statistical Package for the Social Sciences (SPSS) (Nie et al., 1975).

CHAPTER IV

RESULTS AND DISCUSSION

The terms young-old and old-old are used frequently in discussions of the life styles and needs of the elderly. Generally, the young-old are considered to be the individuals aged 55-75, and the old-old, over 75 years of age (Neugarten and Havighurst, 1976). The respondents in this study were 60-95 years of age with approximately one-half over 70 years old (Table 1). For comparative purposes, in this discussion the young-old will be defined as those individuals 60-70 years of age and the old-old as those over 70.

I. Socio-cultural Variables

Socio-cultural characteristics are summarized in Table 1. The individuals who participated in this study were predominantly female, widowed, white, and Protestant. Years of formal education ranged from 0 to 21. Most of the respondents were born in and grew up in Tennessee. Approximately one-half described themselves as being brought up in rural surroundings, whereas the remainder grew up in an urban setting. There were no significant differences in the socio-cultural characteristics of the age groups.

II. Food-related Attitudes

Four salient attitude factors were found and labeled social-adventuresome (Table 2), frugal-utilitarian (Table 3), qualitative-pleasurable (Table 4), and nutritious-healthful (Table 5). Only those

Table 1--Socio-cultural characteristics by age group

Characteristic	Young-Old		Old-Old		Total Sample	
	N	%	N	%	N	%
Age						
60-65	17	55.0	0	0.0	17	25.8
66-70	14	45.0	0	0.0	14	21.2
71-75	0	0.0	19	54.0	19	28.8
76-95	0	0.0	16	46.0	16	24.2
Gender						
Female	27	87.1	33	94.3	60	90.9
Male	4	12.9	2	5.7	6	9.1
Marital status						
Widow(er)	23	74.2	28	80.0	51	77.3
Single	5	16.1	5	14.2	10	15.1
Divorced	3	9.7	1	2.9	4	6.1
Separated	0	0.0	1	2.9	1	1.5
Race						
Black	1	3.2	2	5.7	3	4.5
White	30	96.8	33	94.3	63	95.5
Religion						
Protestant	25	80.7	33	94.2	58	87.9
Catholic	1	3.2	1	2.9	2	3.0
Jewish	1	3.2	1	2.9	2	3.0
Other	4	12.9	0	0.0	4	6.1

Table 1, continued

Characteristic	Young-Old		Old-Old		Total Sample	
	N	%	N	%	N	%
Years of formal education						
0-8	7	22.6	10	28.6	17	25.8
9-12	12	38.7	6	17.1	18	27.3
13-14	4	12.9	10	28.6	14	21.1
15-21	8	25.8	9	25.7	17	25.8
Place of birth						
Tennessee	18	58.0	18	51.4	36	54.5
South, other than TN	6	19.4	7	20.0	13	19.8
Midwest	4	12.9	4	11.4	8	12.1
Northeast	2	6.5	3	8.6	5	7.6
West	1	3.2	1	2.9	2	3.0
Other than U.S.	0	0.0	2	5.7	2	3.0
Place grew-up						
Tennessee	18	58.0	20	57.1	38	57.7
South, other than TN	4	12.9	5	14.3	9	13.6
Midwest	4	12.9	4	11.4	8	12.1
Northeast	2	6.5	3	8.6	5	7.6
West	2	6.5	1	2.9	3	4.5
Other than U.S.	1	3.2	2	5.7	3	4.5
Rural	15	51.6	17	48.6	32	48.5
Urban	16	48.4	18	51.4	34	51.5

Table 2--Social-adventuresome attitude statements^a

Statement	Factor Loading
I like to serve fancier food when I have guests.	0.715
I use my best dishes and best table cloths when I have guests.	0.700
My friends enjoy eating at my home.	0.695
I try new foods I see advertised.	0.657
Cooking special meals for friends is fun.	0.656
I like to have people to eat my meals with.	0.642
I do not like having company for dinner.	-0.634
I like trying new foods.	0.620
I seldom serve refreshments to guests.	-0.609
I do or would enjoy going out to eat where my friends eat.	0.549
I enjoy eating many types of food.	0.530
I enjoy trying new recipes.	0.521
I prepare special foods on holidays.	0.468

^a $\alpha = .80$ for the first 5 statements which were used in the calculation of attitude index.

Table 3--Frugal-utilitarian attitude statements^a

Statement	Factor loading
Meat and meat products are too expensive to serve everyday.	0.765
Foods such as fruit and fruit juices are too expensive to serve everyday.	0.717
I do not like to eat new foods.	0.638
I will never eat left-overs.	0.625
Rather than eat left-overs I will throw away some food.	0.601
I choose softer foods because they are easier to chew.	0.593
I expect refreshments when I go visit someone.	0.548
I feel that I am in good health.	-0.524
I don't care about eating many types of food.	0.442
I am glad if I can get filled up any way I can.	0.437
I have trouble buying food economically because the amount of food I want is sold in the smaller more expensive package size.	0.437
Money is the thing I consider most when I plan meals.	0.432
I think the new convenience foods are great.	0.428

^a $\alpha = .79$ for first 5 statements which were used in the calculation of attitude index.

Table 4--Qualitative-pleasurable attitude statements^a

Statement	Factor loading
I buy only the best quality of foods.	0.718
I sometimes buy foods of lower quality because they are cheaper.	-0.636
I want the food I eat to taste O.K., but it doesn't have to be the best.	-0.625
I like to spend time in the kitchen preparing my food for meals.	0.605
I prepare fancy and expensive foods for myself whenever I want to.	0.597
I try to make my meals attractive even when I eat alone.	0.596
I buy any food I want, whenever I want it, no matter what it costs.	0.581
I would rather do without than buy poor looking fruits and vegetables.	0.530
I spend as little time as I can in the kitchen preparing my meals.	-0.519
I will buy some foods that are more expensive because they are good for me.	0.492
I eat some foods even if they are not my favorite because they are more economical.	-0.448
Brand names are better than store brands.	0.441
The food I eat must have a very good flavor and appearance.	0.426

^a $\alpha = .61$ for first 5 statements which were used in the calculation of attitude index.

Table 5--Nutritious-healthful attitude statements^a

Statement	Factor loading
I read the nutrition labeling on food packages before I buy.	0.844
Nutrition labeling helps me provide more nutritious foods for myself.	0.799
Nutrition labeling gives me more confidence in the food I buy.	0.712
I stay well because I eat nutritious foods.	0.662
I consider my health when I buy food for myself.	0.539
I try to shop when specials are offered at the store.	0.528
I buy foods that are in season because they cost less.	0.466
I eat some foods because they make me feel healthier.	0.436

^a $\alpha = .81$ for first 5 statements which were used in the calculation of attitude index.

attitude statements with factor loadings of ± 0.425 were included and used in the interpretation and labeling of the factors. No significant differences were found between the age groups' responses to each attitude statement as illustrated in Appendix D (Table 45).

The first attitude factor, social-adventuresome, seems to be a combination of the attitude factors sociability, concern for social status, and propensity to change, as described by Steelman (1976). This attitude factor also has the positive aspects of an attitude factor, found and labeled unadventuresome by Schutz et al. (1977) (Table 2).

The frugal-utilitarian attitude factor represents Bayton's (1966) economic parameter and Steelman's (1976) frugality attitude factor, as well as the food-use factors, utilitarian and satiating, found by Schutz et al. (1975). This factor emphasizes food as a necessary by which to sustain life (Table 3).

A qualitative-pleasurable attitude factor also was found (Table 4). A number of researchers have mentioned the qualitative component of this attitude factor. Fewster et al. (1973) labeled a factor that they found evaluative. The evaluative factor included adjectives such as tasty, interesting, superior, and appetizing. A sensory-aesthetic parameter was described by Bayton (1966). Belido (1966) defined value as quality $\times$ price. Eating was perceived as a pleasurable, daily experience. The pleasurable component of this attitude has not been reported in the literature; however, Schutz et al. (1977) mentioned two negatively related factors which were called disinterest in cooking and noncreative.

Lastly, the fourth attitude factor, nutritious-healthy (Table 5) was found and labeled. Nutrition and health have been mentioned frequently in the literature as separate and distinct attitudes, or grouped into a single more comprehensive parameter. Similar attitudes were labeled as concern for health (Steelman, 1976), nutrition (Bayton, 1966), nutrition and health apprehensions (Fewster et al., 1973), and nutrition/health (Beldo, 1966). Although these four food-related attitude factors were predominant among the respondents, the degree of agreement with the statements varied among individuals.

Three statements about the general economic situation of the United States and the respondent's financial situation were placed randomly among the attitude statements in the questionnaire (Table 6). The respondents' perception of the economic situation of the country was diverse. The young-old tended to think that the country's economy would not get better whereas the old-old were somewhat more optimistic, though there was no significant difference in the distribution of responses. The young-old were more ($p < 0.05$) pessimistic about the general state of the economy than the old-old. Neither group thought that their financial situation would become better in the future.

The food matrix (Appendix B, Table 42) left with the respondents to complete following the second interview could not be used because only 12 were completed satisfactorily. The respondents did not use the 7-point scale well, nor were they willing to complete the matrix because they could not visualize its usefulness.

Table 6--Perceptions of economic situation by age group

Item number	Statement	Young-Old		Old-Old		Total sample	
		N	%	N	%	N	%
44	I think the general economic situation of this country will get better.						
	Strongly agree	1	3.2	2	5.7	3	4.5
	Agree	8	25.8	12	34.3	20	30.3
	Neither agree or disagree	3	9.7	8	22.9	11	16.7
	Disagree	16	51.6	10	28.6	26	39.4
	Strongly disagree	3	9.7	3	8.5	6	9.1
100	My present financial situation will get better.						
	Strongly agree	1	3.2	1	2.9	2	3.0
	Agree	3	9.7	3	8.5	6	9.1
	Neither agree or disagree	11	35.5	15	42.9	26	39.4
	Disagree	13	41.9	14	40.0	27	40.9
	Strongly disagree	3	9.7	2	5.7	5	7.6
133	I feel the general state of the economy of this country is good.						
	Strongly agree	0	0.0	0	0.0	0	0.0
	Agree	7	22.6	14	40.0	21	31.8
	Neither agree or disagree	1	3.2	9	25.7	10	15.2
	Disagree	18	58.1	8	22.9	26	39.4
	Strongly disagree	5	16.1	4	11.4	9	13.6

III. Intervening Variables

Economic

The monetary income of the respondents ranged from \$101-150 per month to over \$551 per month (Table 7). There were no significant differences in the income distribution between the age groups nor from the time of the first interview to the second interview. Many of the respondents paid little rent (Table 8) because the apartment complexes in which many lived were government subsidized. As with income there were no differences in expenditures for rent between the young-old and the old-old or over time.

Two individuals who participated in the first interview had mortgage payments between \$101 and 125 per month. No respondents reported mortgage payments during the second interview.

A comparison of mean expenditures per year for property taxes and home owner's insurance is presented in Table 9. A difference ($p < 0.001$) in expenditures was found at the time of the first interview with the old-old having the larger payments; however, because the range in yearly expenditures is large and the sample number small, the difference is not very meaningful. No significant difference between the age groups was found at the time of the second interview.

The expenditures per month for utilities did not differ by age groups or over time (Table 10). Over 60% of the participants paid less than \$10 per month for utilities. The percentage in this group was high because utilities were included in the rent of many of the respondents.

Table 7--Income in dollars per month by age group

Income	First Interview						Second Interview					
	Young-Old		Old-Old		Total sample		Young-Old		Old-Old		Total sample	
	N	%	N	%	N	%	N	%	N	%	N	%
101-150	1	3.2	0	0.0	1	1.5	0	0.0	0	0.0	0	0.0
151-200	9	29.0	6	17.1	15	22.7	3	12.5	1	3.6	4	7.7
201-250	2	6.5	7	20.0	9	13.6	5	20.8	10	35.7	15	28.8
251-300	2	6.5	4	11.4	6	9.1	3	12.5	4	14.3	7	13.5
301-350	3	9.7	2	5.7	5	7.6	2	8.3	0	0.0	2	3.8
351-400	3	9.7	3	8.6	6	9.1	1	4.3	2	7.1	3	5.8
401-450	0	0.0	3	8.6	3	4.5	2	8.3	1	3.6	3	5.8
451-500	3	9.7	1	2.9	4	6.1	0	0.0	2	7.1	2	3.8
501-550	0	0.0	1	2.9	1	1.5	3	12.5	1	3.6	4	7.7
551-above	6	19.3	8	22.8	14	21.2	5	20.8	7	25.0	12	23.1
refused to answer	2	6.4	0	0.0	2	3.0	0	0.0	0	0.0	0	0.0
TOTAL	31	100	35	100	66	100	24	100	28	100	52	100

Table 8--Expenditure in dollars per month for rent by age group

Expenditure	First Interview						Second Interview					
	Young-Old N	%	Old-Old N	%	Total sample N	%	Young-Old N	%	Old-Old N	%	Total sample N	%
26-50	10	40.0	7	25.0	17	32.1	5	29.4	7	31.8	12	30.8
51-75	4	16.0	10	35.7	14	26.4	5	29.4	6	27.4	11	28.2
76-100	2	8.0	1	3.6	3	5.7	2	11.8	3	13.6	5	12.8
101-125	2	8.0	4	14.2	6	11.3	0	0.0	1	4.5	1	2.6
126-150	0	0.0	1	3.6	1	1.9	1	5.9	0	0.0	1	2.6
151-175	0	0.0	1	3.6	1	1.9	0	0.0	2	9.2	2	5.1
176-200	3	12.0	2	7.1	5	9.4	0	0.0	0	0.0	0	0.0
201-225	0	0.0	1	3.6	1	1.9	1	5.9	1	4.5	2	5.1
226-250	0	0.0	0	0.0	0	0.0	0	0.0	1	4.5	1	2.6
251-above	3	12.0	1	3.6	4	7.5	3	17.6	1	4.5	4	10.2
did not know	1	4.0	0	0.0	1	1.9	0	0.0	0	0.0	0	0.0
TOTAL	25	100	28	100	53	100	17	100	22	100	39	100

Table 9--Means for expenditure in dollars per year for property taxes and homeowner's insurance by age group

Age group	Mean	Standard deviation	Range	N	Mean difference	t value
First interview						
Young-Old	504.00	± 262.83	200-900	5	150.80	106.63***
Old-Old	654.80	± 425.90	110-1171	6		
Total sample	572.40	± 342.98	110-1171	11		
Second Interview						
Young-Old	422.50	± 155.68	200-600	7	17.50	.12
Old-Old	440.00	± 264.70	110-700	6		
Total sample	429.50	± 192.10	110-700	13		

***p < 0.001

Table 10--Expenditure in dollars per month for utilities by age group

Expenditure	Young-Old		First Interview Old-Old		Total Sample		Young-Old		Second Interview Old-Old		Total sample	
	N	%	N	%	N	%	N	%	N	%	N	%
10-less	20	64.5	24	68.4	44	66.7	15	62.5	17	60.7	32	61.6
11-15	0	0.0	0	0.0	0	0.0	0	0.0	1	3.6	1	1.9
16-20	0	0.0	2	5.7	2	3.0	0	0.0	0	0.0	0	0.0
21-25	2	6.5	1	2.9	3	4.5	0	0.0	0	0.0	0	0.0
26-30	4	12.9	3	8.6	7	10.6	4	16.7	2	7.1	6	11.5
31-35	0	0.0	1	2.9	1	1.5	2	8.3	2	7.1	4	7.7
36-40	1	3.2	1	2.9	2	3.0	0	0.0	1	3.6	1	1.9
40-above	4	12.9	3	8.6	7	10.6	3	12.5	5	17.9	8	15.4
TOTAL	31	100	35	100	66	100	24	100	28	100	52	100

Monthly medical bills averaged approximately \$20.00 for both age groups and the mean expenditure for medical insurance per month was approximately \$15.00 (Table 11). The average medical insurance payments were low because a number (24.2%) of individuals did not have insurance other than Medicare and/or Medicaid.

Approximately 25% and 31% of the participants were receiving food stamps at the time of the first and second interview, respectively. The young-old paid less ($p < 0.01$) per month for a similar value of food stamps than did the old-old (Table 12). The expenditure per month for and the value received in food stamps did not change over time.

Since the interviews of the participants recruited from the housing complexes were conducted in April and October and the participants recruited from organizations were interviewed in July and January, estimates of price changes were calculated for both periods (Table 13). The overall price increases were 6.66% for the April-October period and 5.03% for the July-January period. Price changes also were calculated for each food category and are reported in Table 13.

Personal and Social

The participants had an average of 1.74 children and 2.82 grandchildren (Table 14). The majority of the children (52.6%) lived within a 50-mile radius of Knoxville, Tennessee. There were no differences between age groups in the distributions of the distances that children lived from their parents (Table 15).

The respondents on the average reported visiting often with their relatives and friends (Table 16). Approximately 60.6 and 57.5% of the

Table 11--Means for expenditures in dollars per month for medical bills and insurance by age group

Age group	Mean	Standard deviation	Range	N	Mean difference	t value
Medical bills						
Young-Old	19.83	± 24.10	0-100	31	.15	.02
Old-Old	19.68	± 39.44	0-200	35		
Total sample	19.76	± 32.78	0-200	66		
Medical insurance						
Young-Old	14.67	± 11.75	0-40	31	1.83	.51
Old-Old	16.50	± 16.63	0-65	35		
Total sample	15.64	± 14.46	0-65	66		

Table 12--Means for expenditure and value in dollars received per month for food stamps by age group

Age group	Mean	Standard deviation	Range	N	Mean difference	t value
Expenditure						
First interview						
Young-Old	23.25	± 7.87	12-33	9	12.04	3.59**
Old-Old	35.29	± 4.96	30-42	8		
Total sample	28.87	± 8.95	12-42	17		
Second interview						
Young-Old	24.50	± 10.11	10-39	8	13.50	3.24**
Old-Old	38.00	± 6.07	30-44	8		
Total sample	31.25	± 10.66	10-44	16		
Value						
First interview						
Young-Old	51.78	± 0.67	50-52	9	.22	1.00
Old-Old	52.00	± 0.00	52	8		
Total sample	51.86	± 0.50	50-52	17		
Second interview						
Young-Old	53.25	± 1.49	50-54	8	.75	1.16
Old-Old	54.00	± 1.07	52-56	8		
Total sample	53.62	± 1.31	50-56	16		

**
p < 0.01

Table 13--Estimates of the percentage in food price changes by food categories

Food category	Price change	
	April-October	July-January
Appetizers	-	-
Beans	-2.46	-6.27
Beverages	+0.90	+3.96
Flour products	+4.21	+4.59
Breakfast foods	+1.93	+6.99
Cheese	+11.54	+3.40
Condiments	+4.18	-0.28
Desserts	+3.23	+4.33
Fats and oils	+5.47	+2.81
Jellies, jams, sugar, and syrups	+0.74	+2.24
Milk and milk products	+7.14	+13.76
Prepared meal items	+6.11	+4.78
Rice	+7.48	+8.53
Fruits	+12.93	+5.69
Vegetables	-2.11	+3.59
Meat and meat substitutes	+11.71	+6.90
Overall	+6.66	+5.03

Table 14--Means for number of children and grandchildren by age group

Characteristic	Mean	Standard deviation	Range	N	Mean difference	t value
Children						
Young-Old	1.55	± 1.63	0-6	31	.36	.90
Old-Old	1.91	± 1.67	0-6	35		
Total sample	1.74	± 1.65	0-6			
Boys						
Young-Old	.71	± 0.74	0-2	31	.46	2.09*
Old-Old	1.17	± 1.01	0-3	35		
Total sample	.96	± 0.92	0-3			
Girls						
Young-Old	.84	± 1.10	0-4	31	.10	.37
Old-Old	.74	± 1.01	0-3	35		
Total sample	.79	± 1.04	0-4			
Grandchildren						
Young-old	3.84	± 5.40	0-26	31	.04	.03
Old-Old	3.80	± 1.67	0-20	35		
Total sample	3.82	± 5.03	0-26			

*
p < 0.05

Table 15--Distance children live from respondents by age group

Distance miles	Young-Old		Old-Old		All ages	
	N	%	N	%	N	%
<50	25	54.3	35	51.5	60	52.6
50-150	1	2.2	3	4.4	4	3.5
151-350	9	19.6	10	14.7	19	16.7
351-650	9	19.6	13	19.1	22	19.3
>651	2	4.3	7	10.3	9	7.9
TOTAL	46	100	68	100	114	100

Table 16--Means for the reported number of visits per year with relatives and friends by age group

Age group	Mean	Standard deviation	Range	N	Mean difference	t value
Relatives						
Young-Old	27.71	± 46.64	0-240	31	27.29	1.47
Old-Old	55.00	± 93.59	0-360	35		
Total sample	42.18	± 75.99	0-360	66		
Friends						
Young-Old	105.86	± 136.63	0-365	31	9.79	.28
Old-Old	115.65	± 138.72	0-480	35		
Total sample	111.14	± 136.74	0-480	66		

total sample ate with relatives or friends, respectively (Table 17). Most of the respondents reported eating meals or meals and snacks with relatives and friends through the year. There were no differences between age groups with respect to the number of snacks they ate with relatives and friends; however, the old-old ate more ($p < 0.05$) meals with relatives but ate no more meals with friends than the young-old did (Table 18). The actual number of times per month that the respondents ate meals and snacks with relatives and friends as reported in diaries is shown in Table 19.

As shown in Table 20, the old-old were as active as the young-old as measured with the social activity instrument (Lawton, undated). The reported level of activity for each item on the instrument by age group is given in Appendix D (Table 46). The distribution of reported activity for each item did not differ between age groups.

These social patterns concur with Shanas' (1979) evidence that elderly people in contemporary American Society are not alienated from their families nor are they socially isolated.

Nearly 38% of the participants reported that they followed a special diet prescribed by a health professional. The most frequently reported reasons for the special diet were diabetes mellitus, allergies, "digestive problems," and elevated cholesterol and/or triglyceride blood levels. The description of the foods to be eaten or restricted was often vague and at times inappropriate for the condition described.

Situational

Approximately 64% of the respondents lived in housing complexes for the elderly, either government sponsored or private. The remainder

Table 17--Patterns of eating with relatives and friends by age group

Pattern	Young-Old		Old-Old		Total sample	
	N	%	N	%	N	%
Relatives						
Meals	8	25.8	12	34.3	20	30.3
Snacks	0	0.0	0	0.0	0	0.0
Meals and snacks	9	29.0	11	31.4	20	30.3
Never	14	45.2	12	34.3	26	39.4
Friends						
Meals	5	16.1	9	25.7	14	21.2
Snacks	0	0.0	1	2.9	1	1.5
Meals and snacks	12	38.7	11	31.4	23	34.8
Never	14	45.2	14	40.0	28	42.5

Table 18--Means for reported number of meals and snacks eaten per year with relatives and friends by age group

Meals or snacks	Mean	Standard deviation	Range	N	Mean difference	t value
Relatives						
Meals						
Young-Old	10.34	± 15.81	0-60	31	26.37	2.28*
Old-Old	36.71	± 60.62	0-288	35		
Total sample	24.77	± 47.64	0-288	66		
Snacks						
Young-Old	5.79	± 15.45	0-60	31	11.18	.99
Old-Old	16.97	± 58.00	0-324	35		
Total sample	11.84	± 43.94	0-324	66		
Friends						
Meals						
Young-Old	38.28	± 74.67	0-360	31	4.93	.28
Old-Old	33.35	± 65.21	0-360	35		
Total sample	35.62	± 69.19	0-360	66		
Snacks						
Young-Old	13.93	± 38.61	0-192	31	19.07	1.32
Old-Old	33.00	± 67.72	0-288	35		
Total sample	24.39	± 56.86	0-288	66		

*p < 0.05

Table 19--Means for actual number of times per month respondents ate meals and snacks with relatives and friends

Variable	Diary	Mean	Standard deviation	N	Mean difference	t value
Relatives	1	2.88	± 5.77	32	1.79	2.01
	2	1.09	± 2.85			
Friends	1	1.33	± 1.85	32	.88	1.38
	2	2.21	± 3.55			

Table 20--Mean scores for social activity by age group^a

Age Group	Mean	Standard deviation	Range	N	Mean difference	t value
Young-Old	47.79	± 14.70	27-79	24	4.40	1.15
Old-Old	43.39	± 12.86	19-60	28		
Total sample	45.42	± 13.78	19-79	52		

^aPossible range for scores was 16-128.

lived in apartments or houses. The distribution in regard to housing was similar for both the young-old and the old-old (Table 21). Consequently, the storage and cooking facilities of the respondents were much the same (Appendix D, Table 47).

The majority had a standard sized refrigerator and a range which contained one oven and four burners. Some (24.2%) individuals also had separate unit freezers. Most respondents had a medium amount of cabinet space as defined by 10-12 cabinets in the kitchen with no pantry. All but one person used electrical appliances (Appendix D, Table 47). Because of the similarities, the type of dwelling and cooking and storage facilities were not used in further analyses.

IV. Food Acceptance

Forty-five of the 66 participants in the first interview completed a diary. Of the 52 individuals who remained in the study, 32 completed the second diary. A diary was considered complete if

Table 21--Type of dwelling by age group

Type of dwelling	Young-Old		Old-Old		Total sample	
	N	%	N	%	N	%
Government elderly	12	38.7	17	48.7	29	43.9
Private elderly	7	22.5	6	17.1	13	19.7
Apartment	6	19.4	6	17.1	12	18.2
House	6	19.4	6	17.1	12	18.2
TOTAL	31	100	35	100	66	100

records were kept for at least two of the four weeks. Participants were not asked to complete a second diary if they had not finished the first diary. Comparisons between the data from the first and second diaries are reported for only those individuals who completed both diaries. Data for all those who completed the first diary are given in Appendix D (Tables 48-56).

Food Expenditure

Estimated expenditures per week for food at the grocery store by the respondents were \$15.59 and 15.28 for the first and second interviews, respectively (Table 22). At the time of the first interview 14 individuals could not estimate the amount of money that they spent for food at the grocery store; however, all the participants in the second interview did provide an estimate. The estimated expenditure per week for food purchased away from home was \$3.10 for the first interview and \$4.76 for the second interview (Table 22).

The estimates for food expenditures at the grocery store and away from home, the actual food expenditures at the store and away from home, and the total expenditure for food did not change significantly over time (Table 23). The actual amount spent per month at the grocery store was approximately \$55.00, and the actual amount spent on food away from home per month ranged from \$7.00 to 9.00. The total expenditure per month for food was \$60.00-65.00. The participants spent approximately \$7.00 for food everytime they went to the grocery store (Table 23).

Although food expenditures did not differ from the first interview period to the second, there was an upward trend. The rate of

Table 22--Means for reported expenditures in dollars for food at the grocery store and away from home per week by age group

Age group	Mean	Standard deviation	Range	N	Mean difference	t value
Grocery store						
First interview						
Young-Old	15.42	± 7.66	8-45	27	.35	.19
Did not know				4		
Old-Old	15.77	± 5.05	10-30	25	.18	.10
Did not know				10		
Total sample	15.59	± 6.47	8-45	52		
				14		
Second interview						
Young-Old	15.38	± 7.35	8-35	24	.18	.10
Old-Old	15.20	± 6.66	8-30	28		
Total sample	15.28	± 6.92	8-35	52		
Away from home						
First interview						
Young-Old	4.15	± 7.42	0-36	28	1.96	1.31
Did not know				3		
Old-Old	2.19	± 3.87	0-15	32	1.37	.53
Did not know				3		
Total sample	3.10	± 5.84	0-36	60		
Did not know				6		
Second interview						
Young-Old	5.49	± 8.69	0-30	24	1.37	.53
Old-Old	4.12	± 9.60	0-50	28		
Total sample	4.76	± 9.13	0-50	52		

Table 23--Means for food expenditures in dollars over time

Food expenditure	Diary	Mean	Standard deviation	N	Mean difference	t value
Estimation of food expenditure at store per month	1	69.25	± 35.25	41	-9.15	1.05
	2	60.10	± 30.92			
Estimation of food expenditure away from home per month	1	19.66	± 29.78	47	+.12	.25
	2	19.78	± 26.34			
Actual food expenditure at store per month	1	53.59	± 18.48	32	+2.08	.66
	2	55.67	± 20.46			
Amount spent for food at store per trip	1	6.58	± 4.20	32	+1.23	1.88
	2	7.81	± 5.73			
Actual food expenditure away from home per month	1	6.98	± 10.30	32	+2.02	.82
	2	9.01	± 12.19			
Amount spent for food away from home per trip	1	1.72	± 1.86	32	+.03	.10
	2	1.75	± 1.46			
Total expenditure for food per month	1	60.58	± 20.33	32	+4.10	1.17
	2	64.68	± 21.40			

inflation as determined for this study was approximately 5-7% (Table 13, p. 48). The increase in the mean total food expenditure was approximately 6.5%. If the time between interviews had been longer than the seven months employed in this study or a larger sample population obtained, the differences might have been statistically significant.

The expenditure by the respondents for food at the grocery store was less than that suggested for the USDA's thrifty plan for the cost of food at home. The respondents' average total food expenditures, which included food purchased at the grocery store and away from home, were comparable to the amount suggested by the USDA's thrifty plan (USDA, 1978, 1979). The thrifty plan for the second quarter of 1978 was approximately \$60.00, and for the first quarter of 1979 was approximately \$64.00 (USDA, 1978, 1979).

The thrifty food plan was developed for low-income households by the Agricultural Research Service (ARS) of the USDA. This plan costs less than the other three plans: low-cost, moderate-cost, and liberal-cost. Le Bovit (1965), however, found that the amount spent by the elderly persons living alone exceeded the USDA's low-cost plan at the time. Because of the high rate of inflation in the past decade, comparison of the respondents' food expenditures to the expenditures by the elderly reported by Guthrie et al. (1972) and Todhunter et al. (1974) is impossible.

There was no difference between estimated and actual food expenditures at the grocery store. The differences between the mean estimated and actual expenditures for food away from home were \$12.68 ($t=2.15$, $N=32$, $p < 0.05$) and \$9.78 ($t=2.04$, $N=32$, $p < 0.05$) at the time of the first and second interviews, respectively.

Table 24 includes the percentage of food expenditures at the grocery store in each food category over time. The greatest percentage of the respondents' food dollar went for purchases of meat and meat substitutes, vegetables, fruits, milk and milk products, and other beverages. There were decreases ($p < 0.05$) in the percentage of the food dollar spent for beverages and breakfast foods over time (Table 24). Even though these differences were significant, the changes do not appear to represent important trends.

Gallo and Boehm (1978) reported that the elderly spent approximately 38% of their food dollar on meat and meat substitutes as compared to the 25% found in this study (Table 24). The respondents in this study spent approximately 12% of their food dollar on fruits and 12% on vegetables (Table 24). Approximately 9% of the elderly's food dollar was spent on fruits, and 8% spent on vegetables according to Gallo and Boehm (1978). Regional variation in fruit and vegetable consumption may account for these differences. The respondents in this study spent less on prepared meal items than the individuals who participated in the study of Gallo and Boehm (1978). The percentages spent for food in the remaining categories agree with the findings of Gallo and Boehm (1978).

Percentages of expenditures for fruits, vegetables, and meat and meat substitutes spent for fresh, canned, and frozen products are presented in Table 25. A greater ($p < 0.05$) proportion of frozen meat and meat substitutes was purchased at the time of the second interview with no changes occurring within the fruits and vegetables categories. The percentage spent, however, on frozen meat and meat substitutes was small and thus a small variation could be significant. A small number

Table 24--Means for percentage of food expenditure at store in each food category over time

Food category	Diary	Mean	Standard deviation	N	Mean difference	t value
Appetizers						
	1	0.63	± 1.38	32	+.39	1.03
	2	1.02	± 2.17			
Beans						
	1	0.26	± 0.72	32	+.10	.60
	2	0.36	± 0.70			
Beverages						
	1	12.54	± 7.47	32	-3.13	2.09*
	2	9.41	± 6.78			
Flour products						
	1	6.40	± 3.64	32	+.17	.23
	2	6.57	± 3.58			
Breakfast foods						
	1	3.65	± 3.59	32	-1.23	2.24*
	2	2.42	± 2.53			
Cheese						
	1	4.34	± 3.90	32	+.71	.91
	2	5.05	± 4.42			
Condiments						
	1	2.31	± 2.98	32	-.36	.54
	2	1.96	± 2.23			
Desserts						
	1	4.38	± 4.38	32	-1.03	1.43
	2	3.35	± 3.57			

Table 24, continued

Food category	Diary	Mean	Standard deviation	N	Mean difference	t value
Fats and oils						
	1	2.75	± 2.78	32	-.27	.55
	2	2.48	± 2.57			
Jams, jellies, sugar, and syrups						
	1	1.49	± 2.29	32	+.83	1.42
	2	2.32	± 3.64			
Milk and milk products						
	1	10.98	± 8.52	32	-.79	.60
	2	11.77	± 8.65			
Prepared meal items						
	1	2.23	± 3.02	32	+1.30	1.64
	2	3.53	± 4.27			
Rice						
	1	0.11	± 0.32	32	+.06	.48
	2	0.17	± 0.51			
Fruits						
	1	11.27	± 6.60	32	+1.04	.81
	2	12.31	± 7.07			
Vegetables						
	1	12.29	± 5.41	32	-.01	.00
	2	12.28	± 6.07			
Meat and meat substitutes						
	1	24.37	± 12.64	32	+.70	.39
	2	25.00	± 13.77			

*p < 0.05

Table 25--Means for percentage of expenditures for fruits, vegetables, and meat and meat substitutes spent for fresh, canned, and frozen products over time

Food category	Diary	Mean	Standard deviation	N	Mean difference	t value
Fruits						
Fresh	1	65.08	± 23.37	28	+5.40	.90
	2	78.63	± 21.95	31		
Canned	1	32.47	± 30.52	28	+11.10	1.76
	2	21.37	± 21.95	31		
Frozen	1	2.45	± 12.51	28	-2.45	1.00
	2	0.00	± 0.00	31		
Vegetables						
Fresh	1	67.30	± 26.57	32	-11.84	1.52
	2	55.46	± 22.34	31		
Canned	1	24.05	± 26.05	32	+5.48	1.18
	2	29.53	± 24.35	31		
Frozen	1	8.65	± 14.26	32	+6.36	1.84
	2	15.01	± 20.90	31		
Meat and meat substitutes						
Fresh	1	74.57	± 24.20	31	+.93	.17
	2	75.50	± 21.46	31		
Canned	1	24.32	± 26.71	31	-4.80	.97
	2	19.52	± 21.12	31		
Frozen	1	1.11	± 3.26	31	+3.87	2.47★
	2	4.98	± 7.84	31		

*p < 0.05

of freezers may be responsible for the low proportion of frozen food purchased in all categories. There may also be a lack of acceptance of frozen products on the part of the respondents because of the food habits established in childhood and as young adults.

There have not been any changes in the way consumers have allocated their food dollars among major categories since 1965 (Cromwell and Kerr, 1977), even though food prices have increased, new products have been introduced in the market, and more people are receiving food stamps. Also the elderly receive cost of living increases in their Social Security benefits, which may increase the amount of money available for food. For example, in July 1979, the Social Security benefits increased 9.9% (Social Security Office, 1979).

A dollar value was placed on the gifts of food received by the respondents. A greater ($p < 0.05$) amount of food gifts was received during the first diary keeping period than the second (Table 26). The first interviews were conducted during the spring and summer, and the respondents often were given food from their friends' and relatives' gardens.

Eight individuals kept food gardens. No attempt was made to assign dollar values to the food grown by these respondents.

Table 26--Mean dollar value of food gifts received over time

Diary	Mean	Standard deviation	N	Mean difference	t value
1	4.06	± 4.68	32	1.81	2.15*
2	2.25	± 4.53			

* $p < 0.05$

Shopping Patterns

The respondents bought groceries two or more times a week. The average number of stores shopped at per week was approximately 2 (Table 27). These shopping patterns were consistent over time (Table 27). Mason and Bearden (1978) found that 90% of the elderly in their survey went to the grocery store at least once a week. The number of meals purchased away from home during a month was approximately 3. These most frequently were meals at churches and cafeterias.

The respondents shopped at locally-owned and nationally-owned supermarkets. Similar shopping behavior by the elderly has been reported by Roundtree and Tinklin (1975) and Todhunter et al. (1974). One-half shopped most often at a store within one mile of their home (Table 28). Nevertheless, nearly one-half of the participants drove a car to the grocery store (Table 29). The amount of time per week spent shopping for food is presented in Table 30.

Types and Amounts of Food Selected

The types and amounts of food that the respondents bought are presented in Appendix D (Table 48). The respondents purchased foods predominantly in the medium- and low-price categories (Table 31). This pattern did not change over time.

The percentages of market units purchased within each food and price category are shown in Table 32. Few changes were observed over time. However, there was an increase ($p < 0.05$) in the percentage of market units bought in the high-price flour products category during the second record-keeping period. This also was true of the jams, jellies, sugar, and syrups category. A greater ($p < 0.05$) proportion of market

Table 27--Shopping and meal purchasing patterns over time

Pattern	Diary	Mean	Standard deviation	N	Mean difference	t value
Number of visits to store per week	1	2.56	± 1.11	32	-.04	.27
	2	2.51	± 1.38			
Number of stores visited per week	1	1.93	$\pm .85$	32	-.07	.51
	2	1.86	$\pm .99$			
Number of meals purchased away from home per month	1	2.57	± 3.23	32	+1.15	1.06
	2	3.72	± 5.55			

Table 28--Distance to grocery store most frequently shopped by age group

Distance miles	Young-Old		Old-Old		Total sample	
	N	%	N	%	N	%
<1	14	45.2	20	57.1	34	51.5
1 < 2	3	9.7	5	14.3	8	12.1
2 < 3	7	22.5	8	22.8	15	22.7
3 < 4	4	12.9	1	2.9	5	7.5
>4	3	9.7	1	2.9	4	6.1
TOTAL	31	100	35	100	66	100

Table 29--Manner of transportation to and from the grocery store by age group

Transportation	Young-Old		Old-Old		Total sample	
	N	%	N	%	N	%
Bus	5	16.1	2	5.7	7	10.6
Walk	3	9.7	9	25.7	12	18.2
Car	14	45.1	16	45.8	30	45.4
Friends	2	6.5	4	11.4	6	9.1
Relatives	7	22.6	4	11.4	11	16.7
TOTAL	31	100	35	100	66	100

Table 30--Amount of time per week spent shopping for food by age group

Time hours	Young-Old		Old-Old		Total sample	
	N	%	N	%	N	%
<1	12	50.0	11	39.3	23	44.2
1 < 2	7	29.2	16	57.1	23	44.2
2 < 3	5	20.8	1	3.6	6	11.6
>3	0	0.0	0	0.0	0	0.0
TOTAL	24	100	28	100	52	100

Table 31--Means for percentage of market units purchased within high-, medium-, and low-price categories over time

Price category	Diary	Mean	Standard deviation	N	Mean difference	t value
High	1	15.58	± 9.14	32	+1.93	1.24
	2	17.51	± 10.59			
Medium	1	40.43	± 12.56	32	-.62	.21
	2	39.81	± 15.19			
Low	1	43.98	± 15.47	32	-1.30	.41
	2	42.68	± 18.00			

Table 32--Means for percentage of market units purchased within each food-price category over time

Food-price category	Diary	Mean	Standard deviation	N	Mean difference	t value
Appetizer						
High	1	79.66	± 36.44	8	+9.23	.52
	2	88.89	± 31.43	9		
Medium	1	15.01	± 32.79	8	-3.90	.88
	2	11.11	± 43.03	9		
Low	1	5.33	± 14.10	8	-5.33	1.00
	2	0.00	± 0.00	9		
Beans						
High	1	40.00	± 48.99	5	-28.89	1.07
	2	11.11	± 31.43	9		
Medium	1	40.00	± 48.99	5	-13.79	.48
	2	26.21	± 40.97	9		
Low	1	20.00	± 40.00	5	+42.68	1.66
	2	62.68	± 45.65	9		
Beverages						
High	1	16.98	± 29.70	30	-4.44	.64
	2	12.54	± 12.54	29		
Medium	1	46.92	± 36.85	30	-10.37	1.08
	2	36.55	± 35.54	29		
Low	1	36.10	± 34.49	30	+14.81	1.52
	2	50.91	± 38.64	29		
Flour products						
High	1	5.96	± 11.39	31	+11.24	2.08*
	2	17.20	± 27.29	31		
Medium	1	32.33	± 35.85	31	-.58	.07
	2	31.75	± 29.03	31		
Low	1	61.71	± 34.03	31	-10.66	1.22
	2	51.05	± 33.82	31		

Table 32, continued

Food-price category	Diary	Mean	Standard deviation	N	Mean difference	t value
Breakfast foods						
High	1	11.54	± 24.72	24	-7.94	1.44
	2	3.60	± 8.44	22		
Medium	1	63.59	± 36.57	24	-.14	.01
	2	63.45	± 42.60	22		
Low	1	24.87	± 34.44	24	+8.08	.69
	2	32.95	± 42.77	22		
Cheese						
High	1	56.97	± 38.54	23	+3.37	.30
	2	60.34	± 37.67	25		
Medium	1	26.31	± 30.82	23	-1.54	.16
	2	24.77	± 33.15	25		
Low	1	16.72	± 26.94	23	-1.83	.25
	2	14.89	± 22.77	25		
Condiments						
High	1	21.25	± 33.64	24	+7.85	.68
	2	29.10	± 41.38	21		
Medium	1	14.95	± 26.89	24	-6.39	.85
	2	8.56	± 22.62	21		
Low	1	63.80	± 41.58	24	-1.46	.11
	2	62.34	± 42.99	21		
Desserts						
High	1	22.63	± 31.23	27	+4.34	.43
	2	26.97	± 37.07	22		
Medium	1	33.19	± 35.29	27	-10.30	1.01
	2	22.89	± 34.10	22		
Low	1	44.18	± 35.82	27	-5.96	.54
	2	50.14	± 39.49	22		

Table 32, continued

Food-price category	Diary	Mean	Standard deviation	N	Mean difference	t value
Fats and oils						
High	1	11.80	± 25.28	22	-.57	.07
	2	11.23	± 24.53	23		
Medium	1	41.67	± 44.02	22	-7.40	.55
	2	34.27	± 43.43	23		
Low	1	46.53	± 40.24	22	+7.97	.60
	2	54.50	± 46.91	23		
Jams, jellies, sugar, and syrups						
High	1	11.12	± 16.62	12	+23.16	2.12*
	2	34.28	± 37.48	16		
Medium	1	23.45	± 26.25	12	-9.66	.91
	2	13.78	± 27.45	16		
Low	1	65.43	± 35.73	12	-13.49	.91
	2	51.94	± 39.65	16		
Milk and milk products						
High	1	21.03	± 25.83	30	+.43	.06
	2	21.46	± 30.44	31		
Medium	1	50.48	± 32.20	30	-6.69	.76
	2	57.17	± 35.07	31		
Low	1	28.49	± 28.56	30	-7.12	.93
	2	21.37	± 30.51	31		
Prepared meal items						
High	1	9.36	± 16.74	20	+13.61	1.83
	2	22.97	± 29.84	23		
Medium	1	48.45	± 38.80	20	-5.09	.43
	2	53.56	± 37.73	23		
Low	1	42.19	± 40.83	20	-18.72	1.59
	2	23.47	± 33.69	23		

Table 32, continued

Food-price category	Diary	Mean	Standard deviation	N	Mean difference	t value
Rice						
High	1	25.00	± 43.30	4	+15.00	.43
	2	40.00	± 48.99	5		
Medium	1	25.00	± 43.30	4	-25.00	1.00
	2	0.00	± 0.00	5		
Low	1	50.00	± 50.00	4	+10.00	.26
	2	60.00	± 48.99	5		
Fruits (fresh)						
High	1	12.91	± 12.84	28	-4.09	1.09
	2	8.82	± 15.34	31		
Medium	1	47.39	± 28.84	28	+.30	.04
	2	47.69	± 31.20	31		
Low	1	39.70	± 26.87	28	+3.79	.48
	2	43.49	± 32.67	31		
Fruits (canned)						
High	1	20.95	± 34.34	23	+30.98	2.60*
	2	51.93	± 40.89	20		
Medium	1	60.98	± 41.27	23	-17.97	1.46
	2	43.01	± 37.71	20		
Low	1	18.07	± 31.25	23	-13.01	1.73
	2	5.06	± 15.18	20		
Fruits (frozen)						
High	1	0.00	± 0.00	1	--	--
	2	--	--	0		
Medium	1	100.00	± 0.00	1	--	--
	2	--	--	0		
Low	1	0.00	± 0.00	1	--	--
	2	--	--	0		

Table 32, continued

Food-price category	Diary	Mean	Standard deviation	N	Mean difference	t value
Fruits (total)						
High	1	17.09	± 20.43	31	-3.19	.43
	2	13.90	± 27.23	31		
Medium	1	45.03	± 29.54	31	+2.15	.29
	2	47.18	± 29.72	31		
Low	1	37.88	± 27.33	31	+1.04	.14
	2	38.92	± 31.77	31		
Vegetables (fresh)						
High	1	5.50	± 8.78	32	+3.55	1.02
	2	9.05	± 16.72	30		
Medium	1	27.97	± 23.49	32	-2.50	.36
	2	30.47	± 29.53	30		
Low	1	65.54	± 25.63	32	-5.10	.68
	2	60.44	± 31.41	30		
Vegetables (canned)						
High	1	32.62	± 39.84	23	-11.85	1.12
	2	20.77	± 31.22	25		
Medium	1	46.89	± 33.79	23	+12.94	1.25
	2	59.83	± 36.53	25		
Low	1	20.49	± 28.94	23	-1.09	.12
	2	19.40	± 32.65	25		
Vegetables (frozen)						
High	1	72.06	± 29.99	10	-39.02	2.70*
	2	33.04	± 41.79	17		
Medium	1	20.44	± 30.82	10	+44.36	3.03*
	2	64.80	± 41.85	17		
Low	1	7.50	± 16.01	10	-5.34	.96
	2	2.16	± 5.93	17		

Table 32, continued

Food-price category	Diary	Mean	Standard deviation	N	Mean difference	t value
Vegetables (total)						
High	1	16.15	± 18.70	32	+1.47	.29
	2	17.03	± 21.60	32		
Medium	1	32.13	± 19.28	32	+8.20	1.33
	2	39.75	± 28.38	32		
Low	1	51.72	± 22.55	32	-7.93	1.27
	2	43.22	± 26.63	32		
Meat and meat substitutes (fresh)						
High	1	8.97	± 16.76	31	+1.03	.26
	2	10.00	± 13.57	31		
Medium	1	32.94	± 31.69	31	+1.59	.22
	2	33.94	± 24.70	31		
Low	1	58.67	± 36.53	31	-4.41	.50
	2	54.26	± 31.39	31		
Meat and meat substitutes (canned)						
High	1	7.04	± 22.11	22	+3.19	.57
	2	3.85	± 13.31	23		
Medium	1	29.18	± 40.59	22	+7.12	.59
	2	22.06	± 38.38	23		
Low	1	63.78	± 41.55	22	-10.31	.84
	2	74.09	± 38.47	23		
Meat and meat substitutes (frozen)						
High	1	0.00	± 0.00	4	0.00	.00
	2	0.00	± 0.00	11		
Medium	1	100.00	± 0.00	4	-9.01	1.00
	2	90.91	± 28.75	11		
Low	1	0.00	± 0.00	4	+9.09	1.00
	2	9.09	± 28.75	11		

Table 32, continued

Food-price category	Diary	Mean	Standard deviation	N	Mean difference	t value
Meat and meat substitutes (total)						
High	1	8.87	± 14.60	32	+1.41	.39
	2	10.28	± 14.08	31		
Medium	1	34.90	± 30.16	32	-3.41	.50
	2	31.49	± 22.64	31		
Low	1	56.23	± 33.38	32	+1.98	.25
	2	58.23	± 28.28	31		

*p < 0.05

units of canned fruits in the high price category was bought during the second period of record keeping. Few individuals bought items in the appetizer, beans, rice, and frozen fruits and meat and meat substitutes food categories.

The food (Table 24, p. 62) and food-price (Table 32) categories were developed as a means to investigate the effects of inflation on the food acceptance of the respondents. As previously stated, there was no change in the respondents' allocation of their food dollar among food categories. At the same time food prices increased, therefore, some foods moved from one food-price category to another. It was assumed that if the respondents did not change their food selection, a shift in the purchase of foods in the low-priced category to foods in the medium- and high-priced categories would be observed. There were, however, few significant differences suggesting that the respondents were not purchasing those foods that shifted into higher food-price categories.

The stability in the percentage of market units purchased within food-price categories may be accounted for by the adroitness of the respondents as consumers. The sample population was composed primarily of women who have had many years of practice in the market place. A large variety of food is available to the American consumer; therefore, when one item does increase in price (as did lettuce during this study), individuals switch to other vegetables until the price comes down. During their frequent trips to the store (Table 27, p. 67), respondents compared prices and bought specials when offered. Switching brands and the use of coupons were noted by many of the respondents in their diaries. Convenience foods were purchased infrequently.

The majority of the young-old (67.7%) and of the old-old (62.9%) had not stopped purchasing any foods because of price increases prior to the first interview. Of those who had stopped purchasing some foods, meat and then fruits and vegetables were mentioned most often. When the respondents were asked whether they would stop purchasing any food if food prices were to continue to increase, the majority, 54.8% of the young-old and 65.7% of the old-old, said they would. Again, meats most often were mentioned; out-of-season fruits and vegetables followed.

All but one of the participants noted that food prices had increased since the first interview. Fifty percent of the young-old and 25% of the old-old claimed to have altered their food selection. Reduced purchase of meats was most often mentioned, followed by fruits and vegetables.

None of the respondents were inclined to eliminate any foods from their current diet because of price increases. Generally, a propensity to shift emphasis was expressed; for example, from more to less expensive cuts of meat, or from out-of-season fruits and vegetables to seasonal produce. The food and food-price category data analyses support the respondents' observations.

Meal and Snack Patterns

Three meals a day or 3 meals a day with 1 snack either in the afternoon or evening were the predominant meal and snack patterns of the respondents as reported by Pao (1971) and Todhunter et al. (1974). Four individuals ate 3 meals a day with 2 snacks, 2 respondents consumed 4 meals a day, and another 2 respondents ate 2 meals a day.

The breakfast menus differed among individuals with some eating only toast and coffee and others eating a very substantial meal of egg.,

sausage, grits, toast, juice, and coffee. The midday and evening meals for each respondent were similar but often one was more substantial than the other. The snack items consumed varied greatly among individuals and for each individual. Crackers, cookies, candy bars, fruit, coffee, tea, and milk were some of the most often reported. Weekday patterns of meals and snacks did not differ from the weekend patterns.

Respondents reported throwing little food away. Although the amount of food eaten was requested on the record sheets, only a few individuals gave the information.

Effect of First Interview

Six respondents indicated that the first interview affected their food selection. Three said that they became more aware of what they were buying and how much it cost. Two individuals became more conscientious about eating a "balanced diet" and one began reading the labels on food packages.

Regression Equations

Table 33 includes the F value and coefficient of determination (R^2) for each criterion variable. The criterion variables percentage of food dollar spent for beverages, flour products, and vegetables are not reported because the independent variables used in the multiple regression analyses would not significantly predict their values.

The regression coefficients and partial F values of the predictor variables for each criterion variable are shown in Tables 34-41. All possible regression equations for each criterion variable were examined. The equation determined to give the greater explanatory power had an acceptable value of R^2 and level of probability. The correlation

Table 33--Regression analyses for criterion variables

Source	df	F	Probability > F	R ²
<u>Total expenditure for food</u>				
Regression	7	5.07	.0006	.58
Residual	26			
<u>Estimation of food expenditure at store</u>				
Regression	4	3.40	.0261	.38
Residual	22			
<u>Food expenditure at store</u>				
Regression	7	2.73	.0292	.42
Residual	26			
<u>Estimation of food expenditure away from home</u>				
Regression	6	3.29	.0159	.44
Residual	25			
<u>Food expenditure away from home</u>				
Regression	8	2.84	.0217	.48
Residual	25			
<u>Percentage of food dollar spent for fruits</u>				
Regression	6	4.87	.0017	.52
Residual	27			
<u>Percentage of food dollar spent for meats</u>				
Regression	7	2.58	.0370	.41
Residual	26			
<u>Percentage of food dollar spent for milk and milk products</u>				
Regression	7	2.59	.0361	.41
Residual	26			

Table 34--Regression coefficients and partial F values for total monthly expenditure for food

Variable	b	F (df=1,26)	Probability > F
Relatives index	.0805	16.44	.0004
Medical insurance payments	.4705	5.60	.0257
Friends index	-.0331	3.04	.0929
Medical bills	.1716	2.99	.0955
Social activity index	.4880	2.46	.1287
Age	.7091	1.31	.2632
Number of visits to grocery store per week	-3.5700	1.11	.3014

Table 35--Regression coefficients and partial F values for estimation of weekly expenditure for food at store

Variable	b	F (df=1,22)	Probability > F
Frugal-utilitarian index	-1.8402	9.87	.0047
Income	.9813	4.11	.0549
Medical insurance payments	.1063	1.37	.2543
Age	.1700	.30	.5902

Table 36--Regression coefficients and partial F values for monthly expenditure for food at store

Variable	b	F (df=1,26)	Probability > F
Relatives index	.0607	7.11	.0130
Medical bills	.1962	3.12	.0891
Medical insurance payments	.3496	2.69	.1128
Number of visits to grocery store per week	-4.7325	1.57	.2217
Age	.7732	1.29	.2664
Friends index	-.0131	.55	.4653
Years of formal education	-.6164	.32	.5765

Table 37--Regression coefficients and partial F values for estimation of weekly expenditure for food away from home

Variable	b	F (df=1,25)	Probability > F
Age	-.4665	3.59	.0699
Social activity index	.2353	3.24	.0838
Friends index	-.0095	1.85	.1859
Number of visits to grocery store per week	1.7496	1.84	.1876
Relatives index	.0010	1.60	.2176
Years of formal education	.5345	1.39	.2489

Table 38--Regression coefficients and partial F values for monthly expenditure for food away from home

Variable	b	F (df=1,25)	Probability > F
Years of formal education	1.5853	5.16	.0320
Relatives index	.0212	3.60	.0696
Social activity index	.3390	3.32	.0806
Friends index	-.0125	1.51	.2306
Income	-.6156	.92	.3470
Social-adventuresome index	.4661	.50	.4849
Frugal-utilitarian index	-.3814	.29	.5923
Medical insurance payments	.0519	.22	.6454

Table 39--Regression coefficients and partial F values for percentage of food dollar spent for fruits

Variable	b	F (df=1,27)	Probability > F
Income	1.5802	15.25	.0006
Frugal-utilitarian index	1.1390	7.33	.0116
Medical bills	-.0852	6.47	.0170
Years of formal education	-.9706	5.12	.0320
Number of visits to grocery store per week	2.0762	4.44	.0446
Friends index	-.0072	1.86	.1834

Table 40--Regression coefficients and partial F values for percentage of food dollar spent for meat and meat substitutes

Variable	b	F (df=1,26)	Probability > F
Social-adventuresome index	-2.2677	7.16	.0127
Number of visits to grocery store per week	-6.1611	6.46	.0173
Frugal-utilitarian index	1.8469	3.06	.0921
Years of formal education	-1.6835	2.77	.1082
Medical insurance payments	.1954	1.68	.2066
Relatives index	.0128	.55	.4663
Income	.6691	.50	.4867

Table 41--Regression coefficients and partial F values for percentage of food dollar spent for milk and milk products

Variable	b	F (df=1,26)	Probability > F
Friends index	.0188	4.24	.0497
Social-adventuresome index	1.2178	4.00	.0561
Social activity index	-.3007	3.59	.0693
Qualitative-pleasurable index	-1.1493	3.10	.0899
Frugal-utilitarian index	.9706	2.80	.1062
Medical insurance payments	-.1304	1.87	.1836
Years of formal education	.5109	1.09	.3067

coefficients of the predictor variables are reported in Appendix D (Table 57). Nie et al. (1975) suggest that only one of any two predictor variables which have a correlation coefficient of greater than .80 should be included in the regression equation. Low correlation among predictor variables indicated that it was appropriate to include all of them in the regression analyses.

The independent variables chosen as predictors were representative of the various components that influence food acceptance as shown in the conceptual model (Figure 1, p. 3). Expenditures for housing and utilities were not included because the majority of the respondents lived in housing complexes which included utilities in the rent, and the rent charged was in proportion to their income. Since the sample population was predominantly white, female, widowed, and Protestant, these characteristics were not included because they would not have given additional information in the equations.

Number of years of formal education, the amount of medical insurance payment, relatives index, and friends index were the predictor variables most often effective in the regression models. Three of the attitude indexes of the respondents provided more explanatory power in predicting the percentage spent within food categories than in predicting expenditures. The nutritious-healthful attitude index did not facilitate prediction of any of the criterion variables.

Years of formal education were positively related to the estimated and actual food expenditure away from home, and the percentage of the food dollar spent for milk and milk products. Education, however, was negatively related to food expenditure at the grocery store and the percentages spent for fruits and meat and meat substitutes. Clancy

(1975) reported that the years of formal education were positively related to nutrient intake.

Age as a predictor variable in the regression models, however, was positively related to the total expenditure for food and the estimated and actual food expenditures at the grocery store, and negatively related to the estimated food expenditure away from home.

Income positively predicted the estimated food expenditure at the grocery store and the percentages spent for fruits and meat and meat substitutes. Food expenditure away from home, however, was negatively related to income. Income was not shown to be related to total food expenditure as suggested by others (Burk, 1970; de Garine, 1972; Swagler, 1975). Lower household income for the elderly was not reflected in lower spending for food according to Gallo and Boehm (1978).

Medical insurance payments and the amount of monthly medical bills of the respondents were positively related to total food expenditure at the grocery store and the food expenditure away from home, and the percentage of the food dollar spent for meat and meat substitutes was positively predicted by the medical insurance payments. The percentages of the food dollar spent for milk and milk products and fruits were negatively related to the amount of medical insurance payments and medical bills, respectively.

The variables medical bills and medical insurance payments were included in the regression model because they were thought to be representative of large, fixed expenditures for some individuals and would decrease the amount of discretionary income that could be spent for food. The data do not support this assumption.

The number of visits to the grocery store per week by the respondents was positively related to the estimation of food expenditure away from home and the percentage of their food dollar spent for fruits. The total food expenditure, food expenditure at the grocery store, and the percentage spent for meat and meat substitutes were negatively predicted. Perhaps the respondents who were more mobile and could easily visit the grocery store also ate away from home more often. The increased number of visits to the grocery store also may represent frugal and discriminating shopping by the respondents.

The relatives index of the respondents positively predicted the total food expenditure, the food expenditure at the grocery store, the estimated and actual food expenditure away from home, and the percentage spent for meat and meat substitutes. The interaction of the respondents with their relatives was obviously a positive factor with regard to their food acceptance.

In contrast, the friends index was negatively related to the total food expenditure, food expenditure at the grocery store, the estimated and actual food expenditure away from home, and the percentage spent for fruits, but positively related to the percentage spent for milk and milk products. This may be because these individuals who socialize more with friends may share meals. By combining resources, often meals can be actually less expensive per serving. Whereas, the older relative may contribute more in terms of food dollars to his/her possibly younger relative.

The social activity of the respondents was positively related to the total food expenditure and the estimated and actual food expenditure away from home. Clancy (1975) found that persons with

higher social participation had significantly better diets. Social activity, however, was negatively related to the percentage spent for milk and milk products in this investigation.

A social-adventuresome attitude index was positively related to expenditures for food away from home and percentage spent for milk and milk products, and negatively related to meat and meat substitutes. Therefore, a more social-adventuresome person (as reflected by a low index) would spend less for milk and milk products and more for meat and meat substitutes. As reflected in the statements which composed this attitude index, socializing for the most part was done at home and not in going out to eat.

The estimated food expenditure at the grocery store and the food expenditure away from home were inversely related to the frugal-utilitarian index. Individuals who have lower frugal-utilitarian indexes or are more frugal perhaps are more sensitive to food prices. This suggests that eating away from home for a single person may be more economical. A frugal-utilitarian attitude (as reflected by a low index) was negatively related to the percentages spent for fruits, meat and meat substitutes, and milk and milk products. The more frugal person would spend less for these higher priced foods.

The percentage of the respondents' food dollar that was spent for milk and milk products was inversely related to the qualitative-pleasurable attitude index. Individuals who perceive milk and milk products as high quality and pleasurable foods (as reflected by a low index) will spend more for these products. However, milk is not likely to be used in a social context as indicated by milk and milk product's negative relationship to the social activity index and a low social-adventuresome index.

The regression models used in this study explained from 38 to 58% of the variation in food acceptance as defined and measured by the selected criterion variables. The results of this study clearly indicated the complexity and the number of influences involved in the food acceptance of individuals.

Consumer Welfare

Income (Adelson, 1968; Le Bovit, 1965; Shock, 1970) and food expenditure have been suggested to be indicators of consumer welfare (i.e., nutrient intake). This sample populations' total expenditure for food was equivalent to the USDA's thrifty food plan. Lane and Vermeersch (1979) suggested that the thrifty plan inadequately provides for a number of nutrients. Nutrient content of suggested meals was compared with the RDA's for a 25-year-old male. If the standard of two-thirds of the RDA's as used by Beauchene and Davis (1979) had been used, the conclusion drawn by Lane and Vermeersch (1979) would not be valid.

Respondents in this study purchased large quantities of fresh fruits, vegetables, meat and meat substitutes, and milk and milk products. Few empty-calorie foods were purchased. This suggests that consumer welfare may not be jeopardized by low food expenditure. Obviously, further work needs to be done to elucidate the relationships among income, food expenditure, and consumer welfare.

V. Limitations of the Study

1. Data were collected in Knoxville, Tennessee. The regional attributes that characterize this area limit generalizations to other geographical areas.

2. The sample in the study was small and not selected randomly. The persons who chose to participate may be different in ways relevant to the variables studied.

3. The respondents were for the most part women, white, widowed, and Protestant. Elderly persons of other social and cultural characteristics may not exhibit the same food-related behavior.

4. The data analyzed in the study were self reported. No measures were taken to verify the given information. The consistency of the self-reported data over time, however, suggested that reliable information was obtained. The respondents occasionally called the researcher to correct incomplete records.

CHAPTER V

SUMMARY, CONCLUSIONS, AND IMPLICATIONS

Food-related behavior of the elderly as affected by changing food prices was investigated in this study. Interviews were conducted seven months apart. Sixty-six individuals participated in the first phase of the study, and 52 individuals completed the second phase. The average age of the respondents was approximately 72 years, and the years of formal education ranged from 0 to 21. The participants lived in Knoxville, Tennessee, and predominantly were female, white, widowed, and Protestant. The data were collected from March 1978 to March 1979.

Approximately 64% of the respondents lived in housing complexes for the elderly. Because of the similarity in the type of dwelling among the participants, there were few differences in cooking and storage facilities available. Many of the respondents paid little for rent and utilities because the apartment complexes in which many lived were government subsidized. The monetary income ranged from \$101-150 per month to over \$551 per month. Monthly medical bills averaged approximately \$20.00, and the mean expenditure for medical insurance per month was approximately \$15.00. Twenty-five percent and 31% of the participants were receiving food stamps at the time of the first and second interview, respectively.

The respondents on the average reported visiting with their relatives approximately 42 times a year and with their friends over 100 times a year. The old-old were as active as the young-old as measured with a social activity instrument.

They shopped at locally-owned and nationally-owned supermarkets 2 or more times a week. The average number of stores shopped at per week was approximately 2.

The total expenditure per month for food changed from \$60.00 to 65.00; \$7.00 and 9.00 were spent on food away from home. The participants spent approximately \$7.00 for food every time they went to the grocery store. Although food expenditures at the grocery store did not differ from the first interview period to the second, there was an upward trend. The total expenditure by the respondents for food was equivalent to that suggested for the USDA's thrifty food plan.

The greatest percentage of the respondents' food dollar went for purchases of meat and meat substitutes, vegetables, fruits, and milk and milk products, and other beverages. There were no important changes in the percentage spent for each food category over time.

Foods were purchased predominantly in the medium- and low-price categories. Even though food prices did increase (5-7%) and some foods shifted to higher price categories, there were no major changes in the respondents' allocations of their food dollar among food or food-price categories. The stability in allocation of food dollars among food categories and in the percentage of market units purchased within food-price categories may be accounted for by the adroitness of the respondents as consumers. There was a propensity to shift emphasis; for example, from out-of-season fruits and vegetables to seasonal produce, and to buy specials when offered.

Three meals a day or 3 meals a day with 1 snack in the afternoon or evening were the predominant meal and snack patterns. The respondents purchased approximately 3 meals away from home per month.

Number of years of formal education, the amount of medical insurance payment, relatives index, and friends index were the predictor variables that had the greatest explanatory power in the regression models. Three attitude indexes, social-adventuresome, frugal-utilitarian, and qualitative-pleasurable, provided more explanatory power in predicting the percentage spent within food categories than expenditures. The nutritious-healthful attitude index did not facilitate prediction of any of the criterion variables. The regression models used in this study explained 38-58% of the variation in food acceptance as defined and measured by the selected criterion variables. The values for the criterion variables percentage of food dollar spent for beverages, flour products, and vegetables, however, could not be predicted by the predictor variables.

In conclusion, the results of this study clearly indicate the complexity and the number of influences involved in the food acceptance of individuals. The elderly in this study spent most of their food dollar on food at the grocery store and very little for food away from home. The total food expenditures were comparable to the USDA's thrifty food plan. This would suggest that the amounts proposed for the thrifty plan may be greater than the amount actually being spent by elderly persons living alone, or that the elderly as a group are skilled consumers. A combination of the two reasons may offer the best explanation. The implication of this low level of expenditure with regard to nutrient intake should be investigated.

Large differences, however, existed among the individuals in this study, which necessitates caution when food and nutrition programs

are developed. The elderly are very diverse with regard to socio-cultural characteristics, food-related attitudes, intervening variables, and actual food acceptance.

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LIST OF REFERENCES

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APPENDICES

APPENDIX A

THE UNIVERSITY OF TENNESSEE
KNOXVILLE 37916
COLLEGE OF HOME ECONOMICS

DEPARTMENT OF FOOD SCIENCE, NUTRITION,
AND FOOD SYSTEMS ADMINISTRATION

FOOD SCIENCE (615) 974-5445
NUTRITION (615) 974-3491
FOOD SYSTEMS
ADMINISTRATION (615) 974-5445

February 22, 1978

Dear Residents:

For the past few years the price of food has been changing and for some consumers, this creates problems. We are interested in knowing how people who are retired and living alone are responding to these changes. If policy makers are to help, they need to know what these problems are and how you are responding to food price changes.

We at the Agricultural Experiment Station and College of Home Economics at The University of Tennessee, Knoxville, are studying food habits. In order to complete the project we need the help of retired individuals who are living alone and do not participate in any meal program. Would you be willing to help? If you are willing, a graduate student from the College of Home Economics will visit you during the middle of March. The student will ask you some questions about the kinds of food that you buy, how much you spend for food, and what you think about different foods. In addition, you will be asked to write down what foods you buy and how much they cost for a few weeks. Information gathered from many people will be averaged, so that it will not be possible to identify anyone's answers.

Later in October, a student will visit you and will ask you again to write down the foods that you buy. At that time the student will also ask you about the way you use food.

If you are willing to help us with this, please fill out the postage paid postcard and drop it in the mail. If you think you would like to help but have questions check the appropriate statement and we will call you or someone will be in the lobby at _____ p.m. in the afternoon and _____ p.m. in the evening on March _____, 1978 to answer any questions that you may have. The manager of your housing complex has given us permission to ask you to volunteer to participate in our study; however, they cannot answer the questions you may have so please ask us.

We sincerely hope you will help us and participate.

Sincerely,

Marta Axelson
Research Assistant

Marjorie P. Penfield, Ph.D.
Assistant Professor

MPP:lac

Dear Resident:

The Knoxville Community Development Corporation (KCDC) has given these researchers from the University of Tennessee permission to ask your participation in their project on food habits.

Your participation is voluntary.

Thank you,

Manager

OR

Dear Resident:

I have given these researchers from the University of Tennessee permission to ask your participation in their project on food habits.

Your participation is voluntary.

Thank you,

Manager

THE UNIVERSITY OF TENNESSEE
KNOXVILLE 37916
COLLEGE OF HOME ECONOMICS

DEPARTMENT OF FOOD SCIENCE, NUTRITION,
AND FOOD SYSTEMS ADMINISTRATION

FOOD SCIENCE (615) 974-5445
NUTRITION (615) 974-3491
FOOD SYSTEMS
ADMINISTRATION (615) 974-5445

June 29, 1978

Dear

For the past few years the price of food has been changing and for some consumers, this creates problems. We are interested in knowing how people who are retired and living alone are responding to these changes. If policy makers are to help, they need to know what these problems are and how people are responding to food price changes.

We at the Agricultural Experiment Station and College of Home Economics at The University of Tennessee, Knoxville, are studying food habits. In order to complete the project, we need the help of retired individuals who are living alone and do not participate in any meal programs.

We would like to come to your meeting on _____ and explain the project and ask for volunteers from the _____. After the meeting the names of the persons who wish to participate will be taken and a meeting time with one of our interviewers arranged.

The interview consists of questions about the kinds of food bought, how much spent, and attitudes toward food. Each person will be asked to keep a diary of what foods they buy and how much they paid for the food for a few weeks. The information gathered will be averaged, so that it will be impossible to identify anyone's answer.

In February, the volunteers will again be asked to write down the foods that they buy and they also will be asked about the way they use food.

We sincerely appreciate your willingness to help us with this worthwhile project by allowing us to ask for volunteers at your meeting. If you have any questions please feel free to call.

Sincerely,

Marta Axelson
Research Assistant

Marjorie P. Penfield
Assistant Professor

MPP:lac

APPENDIX B

UNIVERSITY OF TENNESSEE--KNOXVILLE
AGRICULTURAL EXPERIMENT STATION
AND COLLEGE OF HOME ECONOMICS

PROJECT CONSENT FORM

I, the undersigned, _____,
by my signature agree that

- (1) I would like to participate in the food selection and consumption project approved and administered by the professional staff of the Agricultural Experiment Station and College of Home Economics at the University of Tennessee--Knoxville;
- (2) I understand that this project has been judged by the professional staff to be in no way harmful to the participants involved and in no way an inappropriate or unnecessary invasion of my privacy;
- (3) I understand that participation in this program is not likely to harm me and that no specific benefits or effects are guaranteed;
- (4) It is my understanding that each aspect of the project in which I am asked to participate will be explained to me and that I may withdraw from participation at any time if such involvement is unacceptable to me;
- (5) All results will be treated with strict confidence, all individuals will remain anonymous in reporting any results, and all results will be handled in a professional manner;
- (6) The University of Tennessee, its agents and employees, are all released from any liability resulting from such participation, irrespective of cause or effect.
- (7) I understand that my participation involves: (a) answering questions and keeping a diary at this time for four weeks, and (b) in nine months another interview and keeping of a diary for another four weeks.

By my signature I indicate that the research has been explained to me in detail and that I understand that any further questions that I may have about the project will be answered for me by the project director or some other designated member of the project staff.

Signed: _____

Date _____

First Interview

Code Number _____

Interviewer Number _____

Date _____

- (1) Gender: Male----1
Female--2
- (2) Race: Black--1
White--2
Other--3
- (3) Type of Dwelling: Gov't housing----1
Private elderly--2
Apartment-----3
Trailer-----4
House-----5
Condominium-----6
- (4) How old are you?
- (5) Where were you born?
- (6) Where did you grow up?
- (7) Was the area you grew up in rural or urban?
- (8) Of what religion are you? Protestant--1
Catholic----2
Jewish-----3
Other-----4 What? _____
- (9) What is your marital status? Widow(er)---1
Single-----2
Divorced----3
Separated---4
- (10) How many years of school did you complete?

Code Number _____

If you are a home owner, how much do you pay in insurance and taxes?

(13) How much in utilities do you pay a month? (Do not include phone.)

\$10 a month or less-----1
 \$11 to \$15 a month-----2
 \$16 to \$20 a month-----3
 \$21 to \$25 a month-----4
 \$26 to \$30 a month-----5
 \$31 to \$35 a month-----6
 \$36 to \$40 a month-----7
 \$41 a month or above-----8

(14) How much in medical fees do you pay a month? (Set expenses)

(15) Do you have medical insurance?

(16) How much do you pay for medical insurance a month?

(17) How many living sons do you have?
 How many living daughters do you have?

(18) How many living grandchildren do you have?

(19) Where do your children live? (Write down whether the child is a son or daughter and his/her town and state of residence.)

(20) Do you visit with relatives during a month?

(21) (If yes) How often do you visit with relatives in a month?

(22) Do you eat when with relatives?

(23) (If yes) Do you eat meals, snacks, or both when eating with relatives?

(24) (If meals) How often do you eat a meal with relatives in a month?

(25) (If snacks) How often do you eat a snack with relatives in a month?

(26) Do you visit with friends during a month?

(27) (If yes) How often do you visit with friends in a month?

(28) Do you eat when with friends?

(29) (If yes) Do you eat meals, snacks, or both when eating with friends?

(30) (If meals) How often do you eat a meal with friends in a month?

Code Number _____

(Give Respondent Card with Income Divisions)

- (11) Will you please look at the card I have given you and tell me which number corresponds to the total amount of money that you receive in a month.

\$50 a month or less-----1
 \$51 to \$100 a month-----2
 \$101 to \$150 a month-----3
 \$151 to \$200 a month-----4
 \$201 to \$250 a month-----5
 \$251 to \$300 a month-----6
 \$301 to \$350 a month-----7
 \$351 to \$400 a month-----8
 \$401 to \$450 a month-----9
 \$451 to \$500 a month-----10
 \$501 to \$550 a month-----11
 \$551 a month or above-----12

(Give Respondent Card with Rent Divisions)

- (12) If you rent, how much do you pay for rent every month?

\$25 a month or less-----1
 \$26 to \$50 a month-----2
 \$51 to \$75 a month-----3
 \$76 to \$100 a month-----4
 \$101 to \$125 a month-----5
 \$126 to \$150 a month-----6
 \$151 to \$175 a month-----7
 \$176 to \$200 a month-----8
 \$201 to \$225 a month-----9
 \$226 to \$250 a month-----10
 \$251 a month or above-----11

If you are buying a home, how much are your payments a month?

\$25 a month or less-----1
 \$26 to \$50 a month-----2
 \$51 to \$75 a month-----3
 \$76 to \$100 a month-----4
 \$101 to \$125 a month-----5
 \$126 to \$150 a month-----6
 \$151 to \$175 a month-----7
 \$176 to \$200 a month-----8
 \$201 to \$225 a month-----9
 \$226 to \$250 a month-----10
 \$251 a month or above-----11

Code Number

- (31) (If snacks) How often do you eat a snack with friends in a month?
- (32) How do you most frequently get to and from the grocery store?

Bus-----	1	
Walk-----	2	
Car-----	3	
Friends-----	4	
Relatives-----	5	
Taxi-----	6	
Other-----	7	What?

- (33) At what store do you most frequently shop?
- (34) Where is the store?
- (35) How far is the grocery store from your home?
- (36) How much a week do you spend on food at the grocery store?
- (37) How much a week do you spend on food going out to restaurants, cafeterias, or the like?

On the card I have given you there is a list of five responses:
(1) strongly agree; (2) agree; (3) neither agree nor disagree/does not
apply; (4) disagree; and (5) strongly disagree. After each statement
I read would you please give me the response which most describes how
you feel about it.

Items 38-137 are presented in Table 6 (p. 39) and Table 45 (Appendix D).

- (138) Do you have a special diet that you follow given to you by a doctor, nurse, or dietitian?

Reason for diet

- (139) If you have a special diet, what foods must you eat or restrict?

- (140) Storage facilities:
- | | | |
|--------------|--|---------------|
| refrigerator | | small_____ |
| | | normal_____ |
| | | large_____ |
| cabinets | | small#_____ |
| | | average#_____ |
| | | large#_____ |

Do you have a separate unit freezer?

Code Number _____

- (141) Cooking facilities: stove &/or oven efficiency _____
 average _____
 large _____
 gas _____
 electric _____
- (142) Do you get food stamps?
- (143) How much do you spend for food stamps a month?
- (144) How many dollars in food stamps do you receive a month when you buy them?
- (145) Do you keep a garden?
- (146) Have you cut out any foods that you used to eat because of past food price increases?
If yes, what foods? _____
- (147) If prices continue to rise, will you cut out buying any of the foods that you buy now?
If yes, what foods? _____
- (148) If food prices continue to rise, which foods are you particularly anxious not to cut?

Second Interview

Code Number _____

- (1) Which number corresponds to the total amount of money that you receive in a month?

\$50 a month or less-----1
 \$51 to \$100 a month-----2
 \$101 to \$150 a month-----3
 \$151 to \$200 a month-----4
 \$201 to \$250 a month-----5
 \$251 to \$300 a month-----6
 \$301 to \$350 a month-----7
 \$351 to \$400 a month-----8
 \$401 to \$450 a month-----9
 \$451 to \$500 a month-----10
 \$501 to \$550 a month-----11
 \$551 a month or above-----12

- (2) How much do you pay for rent every month?

\$25 a month or less-----1
 \$26 to \$50 a month-----2
 \$51 to \$75 a month-----3
 \$76 to \$100 a month-----4
 \$100 to \$125 a month-----5
 \$126 to \$150 a month-----6
 \$151 to \$175 a month-----7
 \$176 to \$200 a month-----8
 \$201 to \$225 a month-----9
 \$226 to \$250 a month-----10
 \$251 a month or above-----11

If you are buying a home, how much are your payments a month?

\$25 a month or less-----1
 \$26 to \$50 a month-----2
 \$51 to \$75 a month-----3
 \$76 to \$100 a month-----4
 \$101 to \$125 a month-----5
 \$126 to \$150 a month-----6
 \$151 to \$175 a month-----7
 \$176 to \$200 a month-----8
 \$201 to \$225 a month-----9
 \$226 to \$250 a month-----10
 \$251 a month or above-----11

Code Number _____

If you are a home owner, how much do you pay in insurance and taxes?

(3) How much in utilities do you pay a month? (Do not include phone.)

\$10 a month or less-----1
 \$11 to \$15 a month-----2
 \$16 to \$20 a month-----3
 \$21 to \$25 a month-----4
 \$26 to \$30 a month-----5
 \$31 to \$35 a month-----6
 \$36 to \$40 a month-----7
 \$41 a month or above-----8

Social Activities

(For Each Item, Ask:)

(4) In the past year, how often have you:

1	Never	5	2-3x month
2	3x yr or less	6	1x week
3	4-10x yr	7	2-4x week
4	1x month	8	5x week/more

Frequency

- | | |
|----|---|
| a. | Gone to a senior center, or attended a senior citizen's group? |
| b. | Attended a church or synagogue service? |
| c. | Gone to meetings of a church group or other groups or clubs? |
| d. | Gone to the movies, theater, concert or lecture? |
| e. | Gone to a sporting event? |
| f. | Participated in a sport like swimming, fishing, hunting, bicycling, golf? |
| g. | Played cards, bingo, pool or some other game? |
| h. | Taken care of house plants or done any outdoor gardening? |
| i. | Worked on a hobby or handwork like sewing, knitting or wood working? |
| j. | Painted pictures or played a musical instrument? |
| k. | Eaten out at a restaurant for a special occasion with friends or relatives? |
| l. | Babysat for grandchildren or other children? |
| m. | Visited a friend or relative out-of-town for overnight or longer? |
| n. | Gone out-of-town for (a/another) vacation? |
| o. | Had a visit from a friend or relative who lives more than 100 miles away? |
| p. | Done volunteer work? |

Code Number _____

- (5) How much time do you spend at the store shopping for food during a week?
- (6) How much a week do you spend on food at the grocery store?
- (7) How much a week do you spend on food going out to restaurants, cafeterias, or the like?
- (8) Do you get food stamps?
- (9) How much do you spend for food stamps a month?
- (10) How many dollars in food stamps do you receive a month when you buy them?
- (11) Do you think food prices since the previous interview have:
- gone up----1
gone down----2
stayed about the same----3
- (12) Have you stopped buying any foods because of the price increasing since the previous interview?
- (If yes) What foods? _____
- (13) Did the previous interview affect your food habits in any way?

Food Matrix

Table 42--Foods and food uses included in the food matrix

Foods	Food uses
Pie	As a main dish
Potato salad	For dinner
Milk	When watching TV
Tomatoes	To eat with my fingers
Chicken	For men
Coffee	With coffee
Jello	When riding in a car
American cheese	When eating out in a restaurant
Shrimp	When I want something light
Tea	When I am not very hungry
Chili	When I am unhappy
Vegetable soup	For dessert
Liver	When I want something inexpensive
Fish	To eat with a spoon
Soft drinks	For teenagers
Meat loaf	For a sack lunch
TV dinners	At parties
Watermelon	For a between-meal snack
Steak	With friends
Wine	For lunch
Dry cereal	When I want to feel creative
Cake	When I have to lose weight
Dip	When I want something easy to chew
Chop suey	Served cold
Apples	To eat with a fork
Chitterlings	When I want something easy to prepare
Bread	On a picnic
Hamburger	Easy to digest
Yogurt	With cocktails
Roast beef	For guests
Spaghetti	When I want a little variety in my meals
Fried eggs	In the summer
Tossed salad	In a sandwich
Orange juice	For breakfast
Ice cream	For special holidays
Baked beans	When I want something nutritious
Rice	When I do not have much time to eat
Carrots	Something you broil
Bagels	Something you try not to run out of
Broccoli	When I want something I really like
Cottage cheese	Just by itself
Peanut butter	On cold days
French fries	When I am visiting someone
Ham	In a salad
Peas	When I am really hungry

Table 42, continued

Foods	Food uses
Strawberries	For a spicy food
Potato chips	For children
Tuna	When I am not feeling well
Pizza	
Frankfurters	
Pickles	
Onions	
Parsley	
Candy bars	
Bacon	
Tacos	

Instructions for Diaries

We would like to have you complete a diary for each of the next four weeks.

On each diary are the dates for when it is to be filled out.

Examples of how to fill in the diary are given in this separate instruction booklet.

You need to record only information in the diaries about food and beverages.

Note: Information about food bought, eaten away from home, received as a gift, and eaten as a guest is to be recorded in the diaries.

After you complete a diary, put the diary in the envelope and drop it in the mail. Do not put any stamps on the envelope; postage is paid already.

Even if you have not bought any food that week or do not have any entries in the diary, send the diary to us anyway. We know some people do not shop every week.

During the first week you have just two meal pattern diaries to fill out. One on Saturday and one on Wednesday. Put these completed diaries in with the first diary you send back.

If you have any questions call Marta at _____ and leave a message (weekdays) or _____ (evenings and weekends).

Thank you

Axelsson-Penfield
Hatch 519-K-1
FSNFSA-UTK

EXAMPLE

Code _____

Diary No: _____

Week of: _____

Trips to the Store

Store Trip Number	Date	Store Name	Store Location	Total Amount Spent
1	3/6/78	Kroger	Knox Plaza	\$3.53
2	3/10/78	Kroger	Knox Plaza	\$.60
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				

Code _____

I ate as a guest:

[illegible]

Code _____

Gifts of food

[illegible]

EXAMPLE

Code _____

FOOD I ATE TODAYFirst time I ate today: Date 3/7/78 Time 7:00 a.m.

I ate at:

Home-----☒

Outside my home

(Restaurant, cafeteria, etc.)-----☐As a guest-----☐

It cost: _____

I ate: (kinds and amounts
of food)I threw away: (kinds and amounts
of food)frozen orange juice (8 oz.)1 slice toastbutterstrawberry jamSecond time I ate today: Time: 12:30 p.m.

I ate at:

Home-----☐Outside my home-----☒As a guest-----☐It cost: \$2.54I ate: (kinds and amounts
of food)I threw away: (kinds and amounts
of food)1 cup coffee1 hamburger with tomato slicelettuce, and ketchupfrench friescole slaw

EXAMPLE

Code _____

Third time I ate today: Date 3/7/78 Time: 2:30 p.m.

I ate at:

Home-----	
Outside my home-----	X
As a guest-----	

It cost: 25¢I ate: (kinds and amounts
of food)I threw away: (kinds and amounts
of food)1 coke (12 oz.)

Fourth time I ate today: Time: _____

I ate at:

Home-----	
Outside my home-----	
As a guest-----	

It cost: _____

I ate: (kinds and amounts
of food)I threw away: (kinds and amounts
of food)

APPENDIX C

Table 43--Servings or units per market unit and the number of foods priced within each category

Item	Market unit	Servings or units/ market unit	Number of food items priced
APPETIZERS			
Chips	9 oz	9	0
Nuts	12 oz	12	0
Wheat nuts	7 oz	7	0
BEANS			
Beans (canned)	16 oz	4	12
Beans (dried)	16 oz	16	11
BEVERAGES			
Beer	32 oz	4	0
Breakfast drinks (instant)	18 oz	32	2
Carbonated drinks	32 oz	4	5
Coffee	16 oz	60	8
Coffee (instant)	4 oz	60	6
Fruit beverage mixes			
sweetened	6 oz	8	2
unsweetened	0.25 oz	8	2
Fruit juices			
(bottled or canned)	32 oz	5	25
Fruit juices			
(frozen)	12 oz	8	10
Hot chocolate mixes	12 oz	12	5
Tea	16 oz	60	1
Tea bags	4 oz	48	3
Tea (instant)	3 oz	120	2
Tea mixes (instant)	12 oz	24	4
Water (bottled)	32 oz	4	0
FLOUR PRODUCTS			
Biscuits (canned)	12 oz	6	3
Breads	16 oz	12	2
Breadsticks	6 oz	6	1
Chow mein noodles	5 oz	3	1
Coating mix	5 oz	5	1
Cornflake crumbs	16 oz	16	0
Corn meal	5 lbs	80	5
Crackers	16 oz	16	28
Croutons	6 oz	6	3
Doughnuts	16 oz	8	1
Flour	5 lbs	80	7

Table 43, continued

Item	Market unit	Servings or units/ market unit	Number of food items priced
Cracker crumbs	16 oz	16	2
Hamburger/hot dog buns	8 buns	8	2
Muffin/biscuit mixes	7 oz	7	3
Pancake mixes	32 oz	32	3
Pasta	16 oz	16	13
Rice noodles	3 oz	4	1
Rolls	16 oz	12	4
Rolls (canned)	12 oz	6	2
Roll mixes	14 oz	14	1
Taco shells	10 shells	10	3
BREAKFAST FOODS			
Cereals	12 oz	12	52
Cream of wheat	12 oz	12	2
Eggs (frozen)	16 oz	8	1
French toast (frozen)	9 oz	3	1
Grits	12 oz	12	4
Instant breakfast	7.5 oz	6	6
Oats	12 oz	12	5
Sweet rolls (frozen)	14 oz	7	2
Toaster treats	12 oz	6	2
Waffles (frozen)	10 oz	3	4
Wheat germ	10 oz	10	1
CHEESE			
Cheese	16 oz	16	7
Cottage cheese	12 oz	3	2
CONDIMENTS			
Baking powder/soda	16 oz	16	0
Barbecue sauce	16 oz	16	3
Brown gravy sauce	5 oz	5	1
Chili sauces	12 oz	12	2
Cocktail sauce	12 oz	12	1
Hot sauces	5 oz	5	3
Ketchup	14 oz	14	4
Lemon juice	16 oz	16	1
Mayonnaise	16 oz	16	6
Mustard	9 oz	9	4
Olives	6 oz	6	4
Peppers	12 oz	12	1
Pickles	12 oz	12	22

Table 43, continued

Item	Market unit	Servings or units/ market unit	Number of food items priced
Relishes	16 oz	16	9
Salad dressings	8 oz	8	21
Salt	16 oz	16	0
Sandwich spreads	8 oz	8	5
Soy sauce	5 oz	5	1
Spaghetti sauce	32 oz	32	5
Spices	1 oz	1	0
Steak sauces	5 oz	5	5
Sweet & sour sauce	5 oz	5	1
Tomato paste	6 oz	6	1
Tomato puree	10 oz	10	1
Tomato sauces	8 oz	8	7
Vinegar	16 oz	16	0
Worcestershire sauce	5 oz	5	3
Yeast	0.84 oz	3	0
DESSERTS			
Brownie mixes	15 oz	15	2
Cake flour	32 oz	32	1
Cake mixes	18 oz	18	9
Cakes	22 oz	8	11
Candy	16 oz	16	0
Cobblers	26 oz	3	1
Cocoa	16 oz	16	1
Cookie dough	18 oz	18	2
Cookies	12 oz	12	58
Frosting mixes	15 oz	15	2
Gelatin dessert	3 oz	4	2
Pastries	12 oz	6	3
Pie crust	11 oz	11	1
Pie crust mixes	11 oz	11	2
Pies	32 oz	6	4
Pudding (canned)	20 oz	4	2
Pudding dessert	3.25 oz	4	6
Turnover pies	12 oz	6	2
FATS AND OILS			
Butter	16 oz	16	4
Lard	4 lbs	64	1
Margarine	16 oz	16	7
Olive oil	16 oz	16	1
Shortening	3 lbs	48	4
Vegetable oil	24 oz	24	7
Vegetable sprays	9 oz	9	3

Table 43, continued

Item	Market unit	Servings or units/ market unit	Number of food items priced
JAMS, JELLIES, SUGAR AND SYRUPS			
Artificial sweeteners	16 oz	16	0
Hershey's syrup	16 oz	16	1
Honey	16 oz	16	3
Jams	12 oz	12	8
Jellies	12 oz	12	8
Molasses	12 oz	12	1
Sorghum	12 oz	12	0
Sugar (brown)	5 lbs	80	2
Sugar (granulated)	5 lbs	80	4
Syrups	12 oz	12	10
MILK AND MILK PRODUCTS			
Condensed milk	15 oz	3	0
Dips	8 oz	8	5
Half & half	16 oz	16	1
Ice cream/milk	1/2 gal	12	4
Milks	1 qt	4	5
Non-dairy creamer	10 oz	10	0
Nonfat dry milk (instant)	16 oz	16	0
Sour cream	8 oz	8	1
Whipped topping	9 oz	9	3
Whipping cream	8 oz	8	1
Yogurt	8 oz	2	2
PREPARED MEAL ITEMS			
Bouillon cubes	3.25 oz	25	1
Cooking bags	5 oz	1	1
Cup-of-soup	4 oz	4	2
Main dishes (boxed)	7-8 oz	4	2
Main dishes (canned)	1 lb	2	8
Main dishes (frozen)	10-12 oz	2	10
Meats (frozen, prepared)	32 oz	6	3
Pizza (frozen)	21 oz	4	2
Pot pies	8 oz	1	4
Soups (canned)	10-11 oz	3	10
Soup starter	7 oz	7	0
Tuna/hamburger helpers	7-8 oz	4-5	4
TV dinners	10-15 oz	1	12

Table 43, continued

Item	Market unit	Servings or units/ market unit	Number of food items priced
RICE			
Rice	16 oz	16	11
Rice (canned)	15 oz	3	1
FRUITS			
<u>Fresh</u>			
Apples	1 lb	3	1
Apricots	1 lb	5	0
Bananas	1 lb	3	1
Blueberries	1 lb	4	0
Cantaloupe	1	4	0
Cherries	1 lb	3	0
Grapefruit	1 lb	2	0
Grapes	1 lb	3	0
Honeydew melon	1	6	0
Lemons	1 lb	3	1
Limes	1 lb	3	1
Nectarines	1 lb	3	0
Oranges	1 lb	2	0
Papaya	1	2	0
Peaches	1 lb	4	0
Pears	1 lb	4	1
Pineapple	1	6	0
Plums	1 lb	7	0
Raspberries	1 pt	3	0
Strawberries	1 pt	3	0
Watermelon	2 lbs	1	0
<u>Canned</u>			
Apples	16 oz	3	3
Applesauce	16 oz	3	1
Apricots	16 oz	3	0
Blackberries	16 oz	4	1
Cherries	16 oz	3	1
Coconut	16 oz	16	0
Cranberry sauce	16 oz	4	2
Fruit cocktail	16 oz	3	1
Grapefruit	16 oz	3	1
Mandarin oranges	16 oz	3	1
Peaches	16 oz	3	3
Pears	16 oz	3	1
Pie filling	22 oz	6	6
Pineapple	20 oz	4	3
Pumpkin	16 oz	6	0
Purple plums	16 oz	3	1

Table 43, continued

Item	Market unit	Servings or units/ market unit	Number of food items priced
<u>Frozen</u>			
Blueberries	16 oz	16	0
Raspberries	16 oz	16	0
Strawberries	16 oz	16	1
Fruits (dried)	8 oz	4	0
VEGETABLES			
<u>Fresh</u>			
Artichokes	1	1	0
Asparagus spears	1 lb	4	0
Avocado	1	2	0
Broccoli	1 bunch	6	0
Brussels sprouts	1 lb	6	0
Beans, green	1 lb	5	0
Beans, lima	1 lb	3	0
Cabbage	1 lb	5	2
Cantaloupe	1	4	0
Carrots	1 lb	5	1
Cauliflower	1 head	4	0
Celery	1 bunch	6	1
Celery hearts	1 lb	5	0
Corn	3 ears	3	1
Cranberries	1 lb	6	0
Cucumbers	1	3	1
Eggplant	1 lb	4	1
Endive	1 lb	6	1
Kale	1 lb	6	0
Lettuce	1 head	6	1
Lettuce, Boston	1 head	4	1
Lettuce, fresh leaf	1 lb	6	1
Lettuce, red leaf	1 lb	6	0
Lettuce, Romaine	1 lb	6	1
Mushrooms	1 lb	3	1
Mustard greens	1 lb	6	0
Okra	1 lb	4	0
Onions, green	1 lb	6	1
Onions, red	1 lb	6	1
Onions, white	1 lb	6	1
Onions, yellow	1 lb	6	1
Peas, black-eyed	1 lb	4	0
Peas, English	1 lb	2	0
Peppers	1	2	1

Table 43, continued

Item	Market unit	Servings or units/ market unit	Number of food items priced
Potatoes, baking	1 lb	3	1
Potatoes, Idaho	1 lb	3	0
Potatoes, new	1 lb	3	1
Potatoes, sweet	1 lb	3	1
Pumpkin	1 lb	2	0
Radishes	6 oz	6	1
Rutabagas	1 lb	4	0
Spinach	1 lb	6	0
Squash, acorn	1 lb	2	1
Squash, butternut	1 lb	2	0
Squash, white	1 lb	3	0
Squash, yellow	1 lb	3	1
Tomatoes, cherry	1 pt	3	0
Tomatoes	1 lb	5	1
Turnip greens	1 lb	6	0
Turnips	1 lb	3	1
Zucchini	1 lb	3	1
<u>Canned</u>			
Asparagus spears	14.5 oz	3	1
Bamboo shoots	8 oz	4	1
Bean sprouts	16 oz	4	1
Beets	16 oz	3	3
Black-eyed peas	15 oz	3	1
Butter beans	16 oz	3	2
Carrots	16 oz	3	2
Carrots and peas	16 oz	3	1
Chop suey vegetables	16 oz	3	1
Corn	17 oz	3	4
Green and shelled beans	16 oz	3	1
Green beans	16 oz	3	1
Hearts of artichokes	14 oz	4	1
Hearts of celery	16 oz	4	0
Hominy	14.5 oz	3	1
Lima beans	16 oz	3	1
Mayonnaise potato salad	15.5 oz	3	1
Mixed bean salad	17.5 oz	3	1
Mixed chinese vegetables	16 oz	3	1
Mixed vegetables	17 oz	3	1
Mushrooms	2.5 oz	3	4
Mustard greens	15 oz	3	1
Okra	15.5 oz	3	1
Okra, tomatoes, corn	15.5 oz	3	1
Peas	17 oz	3	5

Table 43, continued

Item	Market unit	Servings or units/ market unit	Number of food items priced
Pickled beets	16 oz	3	2
Pimentos	4 oz	4	1
Potatoes (instant)	16 oz	24	8
Red cabbage	16 oz	4	1
Sauerkraut	16 oz	3	1
Small whole onions	16 oz	3	0
Spinach	15 oz	3	1
Squash	16 oz	3	1
Tomatoes	16 oz	3	2
Turnip greens	15 oz	3	1
Water chestnuts	8 oz	4	1
Yams	17 oz	3	1
Zucchini	16 oz	3	1
<u>Frozen</u>			
Artichoke hearts	9 oz	3	0
Asparagus spears	10 oz	3	0
Black-eyed peas	10 oz	3	0
Broccoli spears	10 oz	3	1
Brussels sprouts	10 oz	4	1
Cauliflower	10 oz	3	1
Corn	10 oz	3	1
Corn on cob	16 oz	4	3
Eggplant sticks	7 oz	2	1
Green beans	10 oz	3	0
Lima beans	10 oz	3	2
Mixed vegetables	10 oz	3	2
Mushrooms	6 oz	3	0
Mustard greens	10 oz	3	1
Okra	10 oz	3	0
Onion rings	16 oz	4	2
Onion (chopped)	12 oz	12	1
Peas	10 oz	3	1
Peas and carrots	10 oz	4	1
Potatoes au gratin	11.5 oz	2	1
Potatoes (candied sweet)	12 oz	2	1
Potatoes (french fried)	20 oz	5	4
Potatoes (stuffed)	10 oz	2	2
Rice originals	11 oz	3	0
Spinach	10 oz	3	1
Squash	10 oz	3	1
Turnip greens	10 oz	3	1

Table 43, continued

Item	Market unit	Servings or units/ market unit	Number of food items priced
MEAT AND MEAT SUBSTITUTES			
<u>Beef-fresh</u>			
Beef and hydrated vegetable protein	1 lb	4	0
Bottom round roast	1 lb	3	0
Chuck blade roast	1 lb	2	1
Chuck blade steak	1 lb	2	0
Chuck short ribs	1 lb	1	1
Cubed steak	1 lb	4	1
Flank steak	1 lb	4	1
Ground beef	1 lb	4	1
Ground beef chuck	1 lb	4	0
Kidney	1 lb	4	0
Loin filet mignon	1 lb	3	0
Loin porterhouse steak	1 lb	2	1
Loin sirloin steak	1 lb	3	1
Loin strip steak	1 lb	3	1
Loin T-bone	1 lb	2	0
Plate spareribs	1 lb	1	1
Rib-eye steak	1 lb	3	1
Round rump roast	1 lb	3	0
Round steak	1 lb	3	1
Round tip roast	1 lb	3	1
Round tip steak	1 lb	3	0
Stew meat	1 lb	3	0
Top round roast	1 lb	3	1
Top round steak	1 lb	3	0
<u>Poultry-fresh</u>			
Chicken livers	1 lb	4	1
Fryer breast quarters	1 lb	2	0
Fryer, cut up	1 lb	2	1
Fryer, cut up country-style	1 lb	2	1
Fryer halves	1 lb	2	0
Fryer necks	1 lb	2	1
Fryer thighs	1 lb	2	1
Fryer, whole	1 lb	2	1
Mixed fryer parts	1 lb	2	1
Turkey leg/thigh	1 lb	2	0
<u>Veal-fresh</u>			
Loin chops	1 lb	3	0
Leg heel roast	1 lb	3	0
Leg sirloin steak	1 lb	3	0

Table 43, continued

Item	Market unit	Servings or units/ market unit	Number of food items priced
<u>Pork-fresh</u>			
Bacon	1 lb	8	1
Bacon & pork sausage	1 lb	4	1
Boneless ham	1 lb	3	1
Country sausage links	1 lb	4	1
Country sausage patties	1 lb	4	1
Loin assorted chops	1 lb	2	1
Loin sirloin cutlets	1 lb	4	1
Loin tenderloin	1 lb	4	0
Pork shoulder picnic ham	1 lb	2	1
Sausage, pork	1 lb	4	1
Sausage, whole hog	1 lb	4	1
<u>Beef-frozen</u>			
Beef liver	1 lb	4	0
Beef patties	1 lb	4	1
<u>Pork-frozen</u>			
Bar-B-Q pork	1 lb	4	1
Sausage links	1 lb	4	0
Sausage patties	1 lb	4	0
<u>Poultry-frozen</u>			
Boneless breast of turkey	1 lb	4	1
Frying chicken livers	1 lb	4	0
Frying chicken split breast with ribs	1 lb	2	0
Rock cornish game hen	1 lb	1	0
Young duckling	1 lb	2	0
Young turkey	1 lb	2	1
Young turkey breast	1 lb	3	1
<u>Fish/Seafood-frozen</u>			
Boneless trout	1 lb	2	0
Breaded butterfly shrimp	1 lb	3	1
Breaded fantail shrimp	1 lb	3	0
Breaded oysters	12 oz	2	1
Cod fillets	1 lb	3	0
Fish sticks	1 lb	3	1
Flounder fillets	1 lb	3	1
Fried clams	5 oz	1	0
Haddock fillets	1 lb	3	1
Perch fillets	1 lb	3	1
Rock lobster tails	8 oz	1	1
Seafood croquettes	1 lb	4	0
Shrimp (boiling)	1 lb	3	0

Table 43, continued

Item	Market unit	Servings or units/ market unit	Number of food items priced
Shrimp sticks	1 lb	3	1
Snow crab	1 lb	1	0
Sole fillets	1 lb	3	1
<u>Canned or processed</u>			
Beef-bologna	12 oz	4	1
Bologna	8 oz	3	1
Brown gravy with pork	12 oz	2	1
Canadian bacon	6 oz	4	1
Canned hams	1 lb	3	1
Chicken Bar-B-Q	10.5 oz	2	1
Chicken (boned)	5-6 oz	2	1
Chicken salad	4.75 oz	2	1
Chicken (whole)	2 lbs	3	1
Chopped ham	8 oz	3	0
Chowder clams	4 oz	1	0
Cooked salami	8 oz	3	1
Corned beef	12 oz	4	1
Corned beef (sliced, smoked)	3 oz	2	1
Country ham slices	1 lb	3	1
Cured ham slices	1 lb	3	1
Deviled ham	4.75 oz	2	1
Dried beef	2.5 oz	2	1
Franks	1 lb	5	1
Franks (beef)	1 lb	5	1
Franks (imitation)	1 lb	5	1
Franks (smoked)	1 lb	5	1
Ham	7 oz	2	1
Ham (sliced, smoked)	3 oz	2	1
Ham salad	4.75 oz	2	0
Honey loaf	8 oz	3	0
Kosher pastrami	12 oz	4	0
Liver cheese	8 oz	3	1
Liver sausage	8 oz	4	0
Luncheon meat	12 oz	4	1
Mackerel	15 oz	4	1
Minced clams	7.5 oz	2	1
Mushroom gravy and salisbury steak	12.5 oz	2	1
Old-fashioned loaf	8 oz	3	0
Olive loaf	8 oz	3	1
Pepper loaf	8 oz	3	0
Pickle and pimento loaf	8 oz	3	1
Pickle loaf	8 oz	3	1
Pigs feet	9 oz	2	1

Table 43, continued

Item	Market unit	Servings or units/ market unit	Number of food items priced
Polish sausage	18 oz	6	0
Potted meat	3.5 oz	2	1
Roast beef	4.75 oz	2	1
Roast beef with gravy	12 oz	2	1
Salmon (pink)	1 lb	4	1
Salmon (sockeye red)	7 oz	2	1
Sardines	3.75 oz	2	1
Shrimp	4 oz	1	1
Smoked oysters	5 oz	1	1
Souse	8 oz	3	0
Spam	12 oz	4	1
Spiced luncheon loaf	8 oz	3	0
Summer sausage	8 oz	3	1
Tuna	6.25 oz	2	3
Tuna salad	4.75 oz	2	0
Turkey	5-6 oz	2	0
Turkey salad	4.75 oz	2	1
Vienna sausage	4 oz	2	1
White crab meat	6.5 oz	2	1
Eggs	1 doz	12	4
Peanut butter	12 oz	12	3

Table 44--Price ranges for each food-price category

Food-price category	Price/serving or unit
Appetizers	
High	.086-above
Medium	.056-.085
Low	.055-below
Beans	
High	.090-above
Medium	.070-.089
Low	.069-below
Beverages	
High	.166-above
Medium	.086-.165
Low	.085-below
Flour products	
Breads	
High	.131-above
Medium	.060-.130
Low	.059-below
Flour/mixes	
High	.050-above
Medium	.030-.049
Low	.029-below
Breakfast foods	
High	.100-above
Medium	.050-.099
Low	.049-below
Cheese	
High	.130-above
Medium	.100-.129
Low	.099-below
Condiments	
High	.100-above
Medium	.070-.099
Low	.069-below
Desserts	
High	.100-above
Medium	.070-.099
Low	.069-below

Table 44, continued

Food-price category	Price/serving or unit
Fats and oils	
High	.085-above
Medium	.050-.084
Low	.049-below
Jams, jellies, sugar, and syrups	
High	.070-above
Medium	.040-.069
Low	.039-below
Milk and milk products	
High	.130-above
Medium	.100-.129
Low	.099-below
Prepared meal items	
Main meals	
High	.800-above
Medium	.500-.799
Low	.499-below
Soups	
High	.100-above
Medium	.060-.099
Low	.059-below
Rice	
High	.090-above
Medium	.070-.089
Low	.069-below
Fruits	
High	.180-above
Medium	.110-.179
Low	.109-below
Vegetables	
High	.180-above
Medium	.110-.179
Low	.109-below
Meat and meat substitutes	
High	.700-above
Medium	.360-.699
Low	.359-below

APPENDIX D

Table 45--Mean scores for food-related attitude statements by age group

Item number	Attitude statement	Age group	Mean	Standard deviation	Mean difference	t value
38	I enjoy eating many types of food.	Young-Old	1.68	± 0.65	.09	.49
		Old-Old	1.77	± 0.88		
		Total sample	1.73	± 0.78		
39	I keep within my food budget at all times.	Young-Old	2.68	± 1.08	.09	.35
		Old-Old	2.77	± 1.11		
		Total sample	2.73	± 1.09		
40	It would embarrass me to serve certain foods to my guests.	Young-Old	3.10	± 1.11	.24	.92
		Old-Old	2.86	± 1.00		
		Total sample	2.97	± 1.05		
41	Money is the thing I consider most when I plan meals.	Young-Old	2.97	± 1.20	.14	.51
		Old-Old	3.11	± 1.16		
		Total sample	3.04	± 1.17		
42	I try to shop when specials are offered at the store.	Young-Old	2.23	± 1.02	.17	.67
		Old-Old	2.06	± 1.03		
		Total sample	2.14	± 1.02		
43	There are certain foods I cannot go without no matter what they cost.	Young-Old	2.84	± 1.29	.16	.51
		Old-Old	3.00	± 1.28		
		Total sample	2.92	± 1.28		
45	I do not eat some foods because they are bad for me.	Young-Old	2.45	± 1.18	.02	.08
		Old-Old	2.43	± 1.29		
		Total sample	2.44	± 1.23		

Table 45, continued

Item number	Attitude statement	Age group	Mean	Standard deviation	Mean difference	t value
46	I spend as little time as I can in the kitchen preparing my meals.	Young-Old	2.45	± 1.26	.02	.07
		Old-Old	2.43	± 1.40		
		Total sample	2.44	± 1.33		
47	I try not to use my oven because it takes more electricity than cooking on top of the range.	Young-Old	2.48	± 1.24	.05	.19
		Old-Old	2.43	± 1.17		
		Total sample	2.46	± 1.19		
48	I like food only when it is at the right temperature.	Young-Old	2.64	± 0.95	1.00	.36
		Old-Old	2.74	± 1.20		
		Total sample	2.70	± 1.08		
49	I take vitamin tablets because I need them to keep healthy.	Young-Old	3.13	± 1.41	.04	.12
		Old-Old	3.17	± 1.48		
		Total sample	3.15	± 1.44		
50	Frozen vegetables are better for me than canned vegetables.	Young-Old	3.06	± 1.21	.15	.54
		Old-Old	2.91	± 1.07		
		Total sample	2.98	± 1.13		
51	I try to prepare my meals so there are no leftovers.	Young-Old	2.61	± 1.12	.33	1.02
		Old-Old	2.94	± 1.45		
		Total sample	2.79	± 1.31		
52	I will buy some foods that are more expensive because they are good for me.	Young-Old	2.42	± 1.12	.36	1.43
		Old-Old	2.06	± 0.94		
		Total sample	2.23	± 1.04		

Table 45, continued

Item number	Attitude statement	Age group	Mean	Standard deviation	Mean difference	t value
53	I read the nutrition labeling on food packages before I buy.	Young-Old	2.61	± 1.17	.30	.95
		Old-Old	2.31	± 1.34		
		Total sample	2.46	± 1.27		
54	I don't care about the quality of food as long as it is nutritious.	Young-Old	3.26	± 1.03	.09	.32
		Old-Old	3.17	± 1.18		
		Total sample	3.21	± 1.10		
55	In order to save money, food such as dried milk should be used.	Young-Old	2.61	± 1.05	.50	1.67
		Old-Old	3.11	± 1.34		
		Total sample	2.88	± 1.23		
56	I sometimes buy foods of lower quality because they are cheaper.	Young-Old	3.00	± 1.06	.17	.56
		Old-Old	3.17	± 1.36		
		Total sample	3.09	± 1.22		
57	Nutrition labeling helps me provide more nutritious foods for myself.	Young-Old	2.45	± 0.92	.28	1.10
		Old-Old	2.17	± 1.12		
		Total sample	2.30	± 1.04		
58	Eating out is too expensive unless you have no other choice.	Young-Old	2.23	± 1.20	.12	.41
		Old-Old	2.11	± 1.02		
		Total sample	2.17	± 1.10		
59	I eat some certain foods to make me stay well.	Young-Old	1.90	± 0.65	.04	.23
		Old-Old	1.86	± 0.91		
		Total sample	1.88	± 0.80		

Table 45, continued

Item number	Attitude statement	Age group	Mean	Standard deviation	Mean difference	t value
60	I will eat tougher cuts of meat even though I prefer more tender meat.	Young-Old	2.77	± 1.12	.12	.41
		Old-Old	2.89	± 1.11		
		Total sample	2.83	± 1.10		
61	I enjoy trying out new recipes.	Young-Old	2.29	± 1.10	.25	.87
		Old-Old	2.54	± 1.24		
		Total sample	2.42	± 1.18		
62	I eat some foods because they make me feel healthier.	Young-Old	2.32	± 0.98	.15	.66
		Old-Old	2.17	± 0.89		
		Total sample	2.24	± 0.93		
63	I eat some foods even if they are not my favorite because they are good for me.	Young-Old	2.45	± 1.09	.08	.31
		Old-Old	2.37	± 1.00		
		Total sample	2.41	± 1.04		
64	The larger sized packages that food is sold in prevents my from buying a greater variety of foods.	Young-Old	2.61	± 0.99	.42	1.47
		Old-Old	3.03	± 1.27		
		Total sample	2.83	± 1.16		
65	I do not mind eating alone.	Young-Old	2.36	± 1.17	.24	.81
		Old-Old	2.60	± 1.26		
		Total sample	2.48	± 1.22		
66	The food I eat must have a very good flavor and appearance.	Young-Old	2.03	± 0.75	.14	.77
		Old-Old	1.89	± 0.80		
		Total sample	1.96	± 0.77		

Table 45, continued

Item number	Attitude statement	Age group	Mean	Standard deviation	Mean difference	t value
67	I buy any food I want, whenever I want it, no matter what it costs.	Young-Old	3.39	± 1.23	.10	.31
		Old-Old	3.29	± 1.38		
		Total sample	3.33	± 1.31		
68	I choose softer foods because they are easier to chew.	Young-Old	3.19	± 1.33	.21	.62
		Old-Old	3.40	± 1.36		
		Total sample	3.30	± 1.34		
69	I don't like to cook for myself.	Young-Old	3.10	± 1.42	.07	.20
		Old-Old	3.03	± 1.38		
		Total sample	3.06	± 1.39		
70	I prepare my food like it was prepared for me when I was a child.	Young-Old	3.16	± 1.56	.10	.36
		Old-Old	3.06	± 1.19		
		Total sample	3.11	± 1.16		
71	The print on some packages is too small to read.	Young-Old	2.61	± 1.31	.50	1.58
		Old-Old	2.11	± 1.26		
		Total sample	2.35	± 1.30		
72	I buy the cheapest brands when there is a choice.	Young-Old	3.00	± 1.18	.11	.37
		Old-Old	3.11	± 1.30		
		Total sample	3.06	± 1.24		
73	I don't care about eating many types of foods.	Young-Old	3.52	± 1.09	.06	.21
		Old-Old	3.46	± 1.15		
		Total sample	3.48	± 1.11		

Table 45, continued

Item number	Attitude statement	Age group	Mean	Standard deviation	Mean difference	t value
74	I try to make my meals attractive even when I eat alone.	Young-Old	2.16	± 0.86	.18	.72
		Old-Old	2.34	± 1.14		
		Total sample	2.26	± 1.01		
75	Meat and meat products are too expensive to serve everyday.	Young-Old	3.29	± 1.24	.32	1.02
		Old-Old	2.97	± 1.29		
		Total sample	3.12	± 1.27		
76	I am glad if I can get filled up any way I can	Young-Old	3.74	± 1.06	.11	.41
		Old-Old	3.63	± 1.19		
		Total sample	3.68	± 1.12		
77	I do not like to eat new foods.	Young-Old	3.77	± 0.99	.17	.69
		Old-Old	3.60	± 1.06		
		Total sample	3.68	± 1.02		
78	I eat some foods even if they are not my favorite because they are more economical.	Young-Old	3.03	± 1.02	.06	.23
		Old-Old	2.97	± 1.15		
		Total sample	3.00	± 1.08		
79	I seldom serve refreshments to guests.	Young-Old	3.42	± 1.21	.02	.07
		Old-Old	3.40	± 1.04		
		Total sample	3.41	± 1.11		
80	The larger sized food packages are fine with me because they are usually more economical.	Young-Old	2.61	± 1.12	.45	1.48
		Old-Old	3.06	± 1.31		
		Total sample	2.85	± 1.23		

Table 45, continued

Item number	Attitude statement	Age group	Mean	Standard deviation	Mean difference	t value
81	I feel that I am in good health.	Young-Old	2.23	± 0.99	.09	.32
		Old-Old	2.14	± 1.12		
		Total sample	2.18	± 1.05		
82	I use convenience foods even when they are more expensive.	Young-Old	3.23	± 1.26	.06	.17
		Old-Old	3.17	± 1.29		
		Total sample	3.20	± 1.27		
83	My friends expect me to serve fancier and more expensive foods when they come over to eat.	Young-Old	3.77	± 0.72	.03	.16
		Old-Old	3.74	± 0.85		
		Total sample	3.76	± 0.79		
84	The better food looks, the better it tastes.	Young-Old	2.81	± 1.08	.52	1.82
		Old-Old	2.29	± 1.23		
		Total sample	2.53	± 1.18		
85	I use coupons to buy food whenever I can.	Young-Old	2.45	± 1.18	.36	1.28
		Old-Old	2.09	± 1.15		
		Total sample	2.26	± 1.17		
86	I like to have people to eat my meals with.	Young-Old	2.16	± 0.86	.13	.53
		Old-Old	2.29	± 1.02		
		Total sample	2.23	± 0.94		
87	I have trouble buying food economically because the amount of food I want is sold in the smaller more expensive package size.	Young-Old	3.16	± 1.19	.16	.58
		Old-Old	3.00	± 1.06		
		Total sample	3.08	± 1.11		

Table 45, continued

Item number	Attitude statement	Age group	Mean	Standard deviation	Mean difference	t value
88	Foods such as fruit and fruit juices are too expensive to serve every day.	Young-Old	3.74	± 1.12	.05	.21
		Old-Old	3.69	± 1.05		
		Total sample	3.71	± 1.08		
89	I eat food only because I have to.	Young-Old	3.87	± 1.06	.10	.36
		Old-Old	3.77	± 1.16		
		Total sample	3.82	± 1.11		
90	Cooking special meals for friends is fun.	Young-Old	2.71	± 1.31	.28	1.03
		Old-Old	2.43	± 1.09		
		Total sample	2.56	± 1.11		
91	I would rather do without than buy poor looking fruits and vegetables.	Young-Old	2.06	± 0.77	.03	.15
		Old-Old	2.03	± 1.07		
		Total sample	2.04	± 0.94		
92	On Sundays I prepare special meals for myself.	Young-Old	3.26	± 1.09	.06	.20
		Old-Old	3.20	± 1.21		
		Total sample	3.23	± 1.15		
93	My friends enjoy eating at my home.	Young-Old	2.39	± 0.88	.10	.45
		Old-Old	2.29	± 0.93		
		Total sample	2.33	± 0.90		
94	I sometimes enjoy TV dinners.	Young-Old	3.74	± 1.06	.57	1.81
		Old-Old	3.17	± 1.44		
		Total sample	3.44	± 1.30		

Table 45, continued

Item number	Attitude statement	Age group	Mean	Standard deviation	Mean difference	t value
95	I do without some foods because I don't want to pay a high price for them.	Young-Old	2.74	± 1.12	.37	1.40
		Old-Old	2.37	± 1.03		
		Total sample	2.54	± 1.08		
96	I consider my health when I buy food for myself.	Young-Old	1.84	± 0.74	.13	.68
		Old-Old	1.71	± 0.75		
		Total sample	1.77	± 0.74		
97	I prepare fancy and expensive foods for myself whenever I want to.	Young-Old	3.16	± 1.19	.04	.13
		Old-Old	3.20	± 1.23		
		Total sample	3.18	± 1.20		
98	I like to eat food that I am used to eating.	Young-Old	2.19	± 0.70	.08	.45
		Old-Old	2.11	± 0.72		
		Total sample	2.15	± 0.71		
99	I don't like to eat already prepared foods from the grocery store.	Young-Old	2.26	± 0.96	.48	1.71
		Old-Old	2.74	± 1.29		
		Total sample	2.52	± 1.17		
101	I buy food in smaller packages or containers even if they are more expensive.	Young-Old	2.81	± 1.14	.24	.89
		Old-Old	2.57	± 1.01		
		Total sample	2.68	± 1.07		
102	Nutrition labeling gives me more confidence in the food I buy.	Young-Old	2.39	± 0.96	.22	.93
		Old-Old	2.17	± 0.92		
		Total sample	2.27	± 0.94		

Table 45, continued

Item number	Attitude statement	Age group	Mean	Standard deviation	Mean difference	t value
103	I stay well because I eat nutritious foods.	Young-Old	2.06	± 0.73	.00	.00
		Old-Old	2.06	± 0.84		
		Total sample	2.06	± 0.78		
104	I hardly ever eat steaks or other expensive meats.	Young-Old	2.81	± 1.20	.15	.47
		Old-Old	2.66	± 1.37		
		Total sample	2.73	± 1.28		
105	I think the new convenience foods are great.	Young-Old	3.32	± 1.14	.26	.95
		Old-Old	3.06	± 1.14		
		Total sample	3.18	± 1.14		
106	Some packages and cans are difficult to open.	Young-Old	2.68	± 1.28	.08	.24
		Old-Old	2.60	± 1.31		
		Total sample	2.64	± 1.28		
107	The foods I like best are the ones I learned to eat when I was a child.	Young-Old	2.81	± 1.08	.08	.30
		Old-Old	2.89	± 1.08		
		Total sample	2.85	± 1.07		
108	I like to serve fancier food when I have guests.	Young-Old	2.48	± 1.00	.06	.23
		Old-Old	2.54	± 1.09		
		Total sample	2.52	± 1.04		
109	I would like to see more prepared foods in the grocery store.	Young-Old	3.58	± 1.02	.08	.30
		Old-Old	3.66	± 1.06		
		Total sample	3.62	± 1.03		

Table 45, continued

Item number	Attitude statement	Age group	Mean	Standard deviation	Mean difference	t value
110	I don't care if all the food I eat is my favorite.	Young-Old	2.71	± 0.94	.31	1.31
		Old-Old	2.40	± 0.98		
		Total sample	2.54	± 0.96		
111	Fresh vegetables are better for me than canned vegetables.	Young-Old	2.00	± 0.86	.20	.94
		Old-Old	1.80	± 0.87		
		Total sample	1.89	± 0.86		
112	I don't worry about what I eat as long as I am well and happy.	Young-Old	2.87	± 1.15	.16	.52
		Old-Old	2.71	± 1.30		
		Total sample	2.79	± 1.22		
113	The larger package size saves me money.	Young-Old	2.39	± 1.02	.47	1.71
		Old-Old	2.86	± 1.19		
		Total sample	2.64	± 1.13		
114	I want the food I eat to taste O.K., but it doesn't have to be the best.	Young-Old	2.16	± 0.74	.30	1.37
		Old-Old	2.46	± 0.98		
		Total sample	2.32	± 0.88		
115	I like trying new foods.	Young-Old	2.32	± 1.08	.14	.53
		Old-Old	2.46	± 0.98		
		Total sample	2.39	± 1.02		
116	I buy only the best quality of foods.	Young-Old	2.74	± 1.00	.20	.83
		Old-Old	2.54	± 0.95		
		Total sample	2.64	± 0.97		

Table 45, continued

Item number	Attitude statement	Age group	Mean	Standard deviation	Mean difference	t value
117	I use my best dishes and best table cloths when I have guests.	Young-Old	2.55	± 1.12	.35	1.30
		Old-Old	2.20	± 1.05		
		Total sample	2.36	± 1.09		
118	I like foods that are easy to prepare.	Young-Old	2.29	± 0.78	.23	1.14
		Old-Old	2.06	± 0.87		
		Total sample	2.17	± 0.83		
119	I do or would enjoy going out to eat where my friends eat.	Young-Old	2.16	± 1.00	.07	.30
		Old-Old	2.23	± 0.84		
		Total sample	2.20	± 0.92		
120	I expect refreshments when I go visit someone.	Young-Old	3.81	± 0.75	.10	.57
		Old-Old	3.91	± 0.78		
		Total sample	3.86	± 0.76		
121	I try new foods that I see advertised.	Young-Old	2.90	± 1.16	.30	1.12
		Old-Old	3.20	± 0.99		
		Total sample	3.06	± 1.08		
122	I buy foods that are in season because they cost less.	Young-Old	1.94	± 0.68	.00	.00
		Old-Old	1.94	± 0.76		
		Total sample	1.94	± 0.72		
123	I always offer guests in my home something to eat.	Young-Old	2.81	± 0.98	.07	.26
		Old-Old	2.74	± 1.01		
		Total sample	2.77	± 0.99		

Table 45, continued

Item number	Attitude statement	Age group	Mean	Standard deviation	Mean difference	t value
124	I will never eat left-overs.	Young-Old	4.29	± 0.78	.08	.44
		Old-Old	4.37	± 0.73		
		Total sample	4.33	± 0.75		
125	I prepare special food on holidays.	Young-Old	2.74	± 1.09	.20	.70
		Old-Old	2.54	± 1.20		
		Total sample	2.64	± 1.14		
126	I look at the nutrition labeling of a food before I will buy it.	Young-Old	2.84	± 1.13	.18	.63
		Old-Old	2.66	± 1.21		
		Total sample	2.74	± 1.17		
127	Brand names are better than store brands.	Young-Old	3.06	± 1.18	.00	.00
		Old-Old	3.06	± 1.11		
		Total sample	3.06	± 1.14		
128	I do not cook any different food for guests than I do for myself.	Young-Old	2.87	± 0.99	.27	1.01
		Old-Old	3.14	± 1.17		
		Total sample	3.02	± 1.09		
129	The price of food I feel will continue to go up.	Young-Old	1.84	± 0.58	.15	.94
		Old-Old	1.69	± 0.72		
		Total sample	1.76	± 0.66		
130	I buy new kinds of food when I see them in the food store.	Young-Old	3.03	± 1.08	.17	.65
		Old-Old	3.20	± 1.02		
		Total sample	3.12	± 1.04		

Table 45, continued

Item number	Attitude statement	Age group	Mean	Standard deviation	Mean difference	t value
131	I do not like having company for dinner.	Young-Old	3.84	± 0.90	.10	.39
		Old-Old	3.74	± 1.07		
		Total sample	3.79	± 0.99		
132	I don't care too much about quality just so long as it can be eaten.	Young-Old	3.71	± 1.10	.20	.84
		Old-Old	3.91	± 0.89		
		Total sample	3.82	± 0.99		
134	I serve some foods only on very special occasions because they are too fancy or expensive for every-day use.	Young-Old	2.39	± 0.92	.19	.75
		Old-Old	2.20	± 1.08		
		Total sample	2.29	± 1.00		
135	I only eat the foods I like.	Young-Old	3.13	± 1.12	.42	1.48
		Old-Old	2.71	± 1.15		
		Total sample	2.91	± 1.15		
136	I like to spend time in the kitchen preparing my food for meals.	Young-Old	2.87	± 1.20	.07	.23
		Old-Old	2.94	± 1.35		
		Total sample	2.91	± 1.27		
137	Rather than eat left-overs I will throw away some food.	Young-Old	4.10	± 1.04	.04	.16
		Old-Old	4.06	± 0.97		
		Total sample	4.08	± 1.00		

Table 46--Reported levels of social activities by age group

Activity	Score ^a	Young-Old		Old-Old		Total sample	
		N	%	N	%	N	%
had gone to a senior center, or attended a senior citizen's group.							
	1	4	16.7	12	42.9	16	30.9
	2	4	16.7	2	7.1	6	11.5
	3	1	4.2	2	7.1	3	5.8
	4	5	20.7	5	17.9	10	19.2
	5	6	15.0	4	14.3	10	19.2
	6	1	4.2	1	3.6	2	3.8
	7	2	8.3	2	7.1	4	7.7
	8	1	4.2	0	0.0	1	1.9
had attended a church or synagogue service.							
	1	2	8.3	6	21.4	8	15.4
	2	2	8.3	3	10.7	5	9.6
	3	4	16.7	1	3.6	5	9.6
	4	2	8.3	0	0.0	2	3.8
	5	0	0.0	1	3.6	1	1.9
	6	13	54.2	13	46.4	26	50.0
	7	1	4.2	3	10.7	4	7.8
	8	0	0.0	1	3.6	1	1.9
had gone to meetings of a church group or other groups or clubs.							
	1	10	41.6	9	32.2	19	36.6
	2	2	8.3	1	3.6	3	5.8
	3	1	4.2	2	7.1	3	5.8
	4	4	16.7	6	21.4	10	19.2
	5	2	8.3	4	14.3	6	11.5
	6	4	16.7	4	14.3	8	15.4
	7	0	0.0	2	7.1	2	3.8
	8	1	4.2	0	0.0	1	1.9

Table 46, continued

Activity	Score	Young-Old		Old-Old		Total sample	
		N	%	N	%	N	%
had gone to movies, theater, concert, or lecture.							
	1	11	45.8	15	53.6	26	50.0
	2	7	29.2	5	17.9	12	23.1
	3	2	8.3	3	10.7	5	9.6
	4	1	4.2	3	10.7	4	7.7
	5	3	12.5	2	7.1	5	9.6
	6	0	0.0	0	0.0	0	0.0
	7	0	0.0	0	0.0	0	0.0
	8	0	0.0	0	0.0	0	0.0
had gone to a sporting event.							
	1	22	91.6	24	85.7	46	88.5
	2	1	4.2	2	7.1	3	5.8
	3	1	4.2	1	3.6	2	3.8
	4	0	0.0	0	0.0	0	0.0
	5	0	0.0	1	3.6	1	1.9
	6	0	0.0	0	0.0	0	0.0
	7	0	0.0	0	0.0	0	0.0
	8	0	0.0	0	0.0	0	0.0
had participated in a sport like swimming, fishing, hunting, bicycling, golf.							
	1	16	66.6	22	78.6	38	73.2
	2	0	0.0	0	0.0	0	0.0
	3	0	0.0	2	7.1	2	3.8
	4	1	4.2	0	0.0	1	1.9
	5	1	4.2	1	3.6	2	3.8
	6	1	4.2	1	3.6	2	3.8
	7	0	0.0	0	0.0	0	0.0
	8	5	20.8	2	7.1	7	13.5
had played cards, bingo, pool, or some other game.							
	1	13	54.2	17	60.7	30	57.8
	2	1	4.2	5	17.9	6	11.5
	3	0	0.0	2	7.1	2	3.8

Table 46, continued

Activity	Score	Young-Old		Old-Old		Total sample	
		N	%	N	%	N	%
	4	0	0.0	0	0.0	0	0.0
	5	3	12.5	1	3.6	4	7.7
	6	5	20.8	1	3.6	6	11.5
	7	2	8.3	2	7.1	4	7.7
	8	0	0.0	0	0.0	0	0.0
had taken care of house plants or done any outdoor gardening.							
	1	4	16.7	9	32.1	13	25.0
	2	0	0.0	1	3.6	1	1.9
	3	0	0.0	1	3.6	1	1.9
	4	2	8.3	0	0.0	2	3.8
	5	2	8.3	5	17.9	7	13.5
	6	5	20.8	3	10.7	8	15.4
	7	9	37.5	6	21.4	15	28.9
	8	2	8.3	3	10.7	5	9.6
had worked on a hobby or handwork like sewing, knitting, or wood working.							
	1	7	29.2	3	10.7	10	19.2
	2	0	0.0	1	3.6	1	1.9
	3	1	4.2	1	3.6	2	3.8
	4	0	0.0	3	10.7	3	5.8
	5	3	12.5	6	21.4	9	17.3
	6	2	8.3	1	3.6	3	5.8
	7	2	8.3	1	3.6	3	5.8
	8	9	37.5	12	42.8	21	40.4
had painted picture or played a musical instrument.							
	1	20	83.3	24	85.8	44	84.7
	2	1	4.2	2	7.1	3	5.8
	3	0	0.0	0	0.0	0	0.0
	4	0	0.0	0	0.0	0	0.0
	5	0	0.0	0	0.0	0	0.0
	6	2	8.3	0	0.0	2	3.8
	7	0	0.0	2	7.1	2	3.8
	8	1	4.2	0	0.0	1	1.9

Table 46, continued

Activity	Score	Young-Old		Old-Old		Total sample	
		N	%	N	%	N	%
had eaten out at a restaurant for a special occasion with friends or relatives.							
	1	4	16.7	5	17.9	9	17.3
	2	3	12.5	2	7.1	5	9.6
	3	5	20.8	6	21.4	11	21.1
	4	4	16.7	3	10.7	7	13.5
	5	3	12.5	6	21.4	9	17.3
	6	2	8.3	5	17.9	7	13.5
	7	3	12.5	1	3.6	4	7.7
	8	0	0.0	0	0.0	0	0.0
had baby-sat for grandchildren or other children.							
	1	16	66.6	23	82.1	39	75.0
	2	6	25.0	3	10.7	9	17.4
	3	0	0.0	1	3.6	1	1.9
	4	0	0.0	0	0.0	0	0.0
	5	0	0.0	1	3.6	1	1.9
	6	1	4.2	0	0.0	1	1.9
	7	1	4.2	0	0.0	1	1.9
	8	0	0.0	0	0.0	0	0.0
had visited a friend or relative out-of-town for overnight or longer.							
	1	8	33.3	9	32.2	17	32.7
	2	6	25.0	11	39.3	17	32.7
	3	10	41.7	6	21.4	16	30.8
	4	0	0.0	2	7.1	2	3.8
	5	0	0.0	0	0.0	0	0.0
	6	0	0.0	0	0.0	0	0.0
	7	0	0.0	0	0.0	0	0.0
	8	0	0.0	0	0.0	0	0.0

Table 46, continued

Activity	Score	Young-Old		Old-Old		Total sample	
		N	%	N	%	N	%
had gone out-of-town for (a/another) vaca- tion.							
	1	13	54.2	20	71.4	33	63.4
	2	8	33.3	4	14.3	12	23.1
	3	3	12.5	4	14.3	7	13.5
	4	0	0.0	0	0.0	0	0.0
	5	0	0.0	0	0.0	0	0.0
	6	0	0.0	0	0.0	0	0.0
	7	0	0.0	0	0.0	0	0.0
	8	0	0.0	0	0.0	0	0.0
had a visit from a friend or relative who lives more than 100 miles away.							
	1	5	20.8	7	25.0	12	23.1
	2	10	41.7	11	39.3	21	40.4
	3	5	20.8	9	32.1	14	26.9
	4	3	12.5	1	3.6	4	7.7
	5	0	0.0	0	0.0	0	0.0
	6	1	4.2	0	0.0	1	1.9
	7	0	0.0	0	0.0	0	0.0
	8	0	0.0	0	0.0	0	0.0
had done volunteer work.							
	1	10	41.6	15	53.7	25	48.1
	2	1	4.2	2	7.1	3	5.8
	3	3	12.5	2	7.1	5	9.6
	4	4	16.7	3	10.7	7	13.5
	5	2	8.3	0	0.0	2	3.8
	6	1	4.2	3	10.7	4	7.7
	7	3	12.5	1	3.6	4	7.7
	8	0	0.0	2	7.1	2	3.8

^a1 (Never); 2 (3 times a year or less); 3 (4-10 times a year); 4 (1 time a month); 5 (2-3 times a month); 6 (1 time a week); 7 (2-4 times a week); and 8 (5 times a week or more).

Table 47--Storage and cooking facilities by age group

Facilities	Young-Old		Old-Old		Total sample	
	N	%	N	%	N	%
Storage						
Refrigerator						
Small	8	25.8	14	40.0	22	33.3
Medium	19	61.3	19	54.3	38	57.6
Large	4	12.9	2	5.7	6	9.1
Cabinets						
Small no.	9	29.0	12	34.3	21	31.8
Medium no.	19	61.3	19	54.3	38	57.6
Large no.	3	9.7	4	11.4	7	10.6
Unit freezer	9	29.0	7	20.0	16	24.2
Cooking						
Range						
Efficiency	5	16.1	12	34.3	17	25.8
Average	23	74.2	22	62.9	45	68.2
Large	3	9.7	1	2.9	4	6.0
Energy						
Electric	31	100.0	34	97.1	65	98.5
Gas	0	0.0	1	2.9	1	1.5

Table 48--Market units of food bought by respondents

First interview ^a		Second interview ^b	
Food item	Market units	Food item	Market units
Appetizers			
Chips	8.0	Chips	3.6
Nuts	5.0	Nuts	2.5
Breadsticks	0.5		
Beans			
Dried	11.5	Dried	11.0
Canned	8.5	Canned	1.0
Beverages			
Carbonated drinks	73.0	Fruit juices	
Fruit juices		(bottled or canned)	52.5
(bottled or canned)	72.5	Coffee	28.0
Fruit juices		Carbonated drinks	26.0
(frozen)	49.0	Fruit juices	
Coffee	38.0	(frozen)	25.5
Water (bottled)	29.0	Tea (instant)	9.5
Tea (instant)	27.5	Breakfast drinks	
Tea bags	6.5	(instant)	6.0
Beer	4.5		
Hot chocolate mixes	3.0		
Breakfast drinks	1.5		
Flour products			
Breads	102.0	Breads	67.5
Crackers	36.5	Muffin/biscuit mixes	28.0
Rolls	15.5	Crackers	24.0
Biscuits (canned)	13.5	Biscuits (canned)	18.0
Flour	10.0	Flour	7.5
Muffin/biscuit mixes	10.0	Rolls	6.5
Pasta	4.5	Chow mein noodles	3.0
Hamburger/hot dog buns	3.5	Hamburger/hot dog buns	3.0
Doughnuts	3.0	Pasta	3.0
Corn meal	2.5	Roll mixes	3.0
		Corn meal	2.5
		Doughnuts	1.0
		Croutons	1.0
		Pancake mixes	0.5

Table 48, continued

First interview ^a		Second interview ^b	
Food item	Market units	Food item	Market units
Breakfast foods			
Cereals	59.5	Cereals	26.5
Instant breakfast	8.5	Oats	9.5
Cream of wheat	6.5	Cream of wheat	3.5
Grits	6.5	Instant breakfast	2.5
Oats	6.0	Grits	1.0
Eggs (frozen)	2.0		
Toaster treats	2.0		
Waffles (frozen)	2.0		
Sweet rolls (frozen)	1.0		
Wheat germ	1.0		
Cheese			
Cottage cheese	50.0	Cottage cheese	36.5
Cheese	42.5	Cheese	26.0
Condiments			
Spices	23.5	Spices	19.5
Salad dressings	19.5	Salad dressings	12.0
Mayonnaise	10.5	Salt	10.0
Pickles	7.0	Mayonnaise	9.0
Salt	6.5	Pickles	8.0
Vinegar	6.5	Soy sauce	4.0
Mustard	4.0	Tomato paste	4.0
Ketchup	3.5	Tomato sauce	4.0
Lemon juice	3.5	Lemon juice	2.0
Soy sauce	3.0	Relishes	2.0
Yeast	3.0	Yeast	1.0
Olives	2.5	Baking powder/soda	0.5
Baking powder/soda	2.0		
Tomato paste	2.0		
Worcestershire sauce	2.0		
Steak sauce	1.0		
Tomato sauce	1.0		
Spaghetti sauce	1.0		
Desserts			
Gelatin dessert	42.0	Gelatin dessert	46.0
Cookies	30.5	Cookies	20.0
Candy	19.0	Cake mixes	12.0
Cakes	11.0	Candy	8.5
Cake mixes	11.0	Pudding dessert	3.0

Table 48, continued

First interview ^a		Second interview ^b	
Food item	Market units	Food item	Market units
Pudding dessert	8.0	Cakes	2.0
Pies	4.5	Frosting mixes	2.0
Pastries	3.0	Pies	1.0
Pudding (canned)	1.0		
Turnover pies	1.0		
Fats and oils			
Margarine	36.0	Margarine	28.0
Vegetable oil	17.0	Shortening	4.5
Shortening	5.5	Vegetable oil	4.5
Butter	4.5	Butter	3.0
Vegetable sprays	2.0	Vegetable sprays	1.0
Jams, jellies, sugar and syrups			
Sugar (granulated)	15.0	Sugar (granulated)	12.0
Jams	10.5	Jellies	4.5
Jellies	4.5	Jams	3.5
Artificial sweetener	3.5	Honey	3.0
Molasses	3.0	Sugar (brown)	2.0
Sorghum	1.5	Artificial sweetener	0.5
Sugar (brown)	1.0		
Milk and milk products			
Milks	233.5	Milks	201.0
Yogurt	55.0	Yogurt	31.0
Nonfat dry milk		Ice cream/milk	19.5
(instant)	33.0	Half & half	9.0
Ice cream/milk	23.0	Whipped topping	9.0
Non-dairy creamer	20.0	Condensed milk	5.0
Half & half	9.0	Sour cream	4.0
Whipped topping	6.0	Nonfat dry milk	2.5
Whipping cream	6.0	Dip	1.0
Condensed milk	4.5	Non-dairy creamer	1.0
Sour cream	1.0	Whipping cream	1.0
Prepared meal items			
Soups (canned)	54.0	Soups (canned)	71.0
TV dinners	17.0	Main dishes (canned)	11.0
Main dishes (frozen)	11.0	Pot pies	9.0
Pot pies	9.0	TV dinners	7.0

Table 48, continued

First interview ^a		Second interview ^b	
Food item	Market units	Food item	Market units
Pizza (frozen)	7.0	Main dishes (frozen)	5.0
Main dishes (canned)	5.0	Main dishes (boxed)	3.0
		Cup-of-soup	1.0
		Pizza (frozen)	1.0
		Tuna/hamburger helpers	1.0
		Bouillon cubes	0.5
Rice			
Rice	2.5	Rice	3.5
Fruits (fresh)			
Bananas	122.0	Grapefruit	141.0
Peaches	85.0	Apples	103.0
Apples	58.0	Bananas	95.0
Grapefruit	50.0	Oranges	84.0
Oranges	28.5	Lemons/limes	8.0
Cantaloupe	26.0	Peaches	6.5
Strawberries	25.0	Cantaloupe	3.0
Lemons/limes	12.0	Pears	3.0
Grapes	7.0	Pineapple	3.0
Honeydew melon	6.0	Honeydew melon	2.0
Nectarines	4.5	Grapes	1.0
Watermelon	3.5	Papaya	1.0
Pineapple	3.0	Plums	1.0
Plums	2.5		
Blueberries	2.0		
Pears	2.0		
Papaya	1.0		
Fruits (canned)			
Peaches	37.0	Peaches	19.0
Applesauce	18.0	Pineapple	17.5
Fruit cocktail	17.0	Applesauce	17.0
Pineapple	11.5	Pears	11.0
Pears	10.5	Fruit cocktail	6.5
Plums	6.0	Cranberry sauce	5.0
Cherries	3.5	Coconut	2.0
Apricots	3.0	Apricots	1.5
Coconut	3.0	Apples	1.0
Cranberry sauce	3.0	Blackberries	1.0
Apples	2.0	Cherries	1.0

Table 48, continued

First interview ^a		Second interview ^b	
Food item	Market units	Food item	Market units
Grapefruit	2.0		
Mandarin oranges	1.5		
Fruits (frozen)			
Strawberries	3.0		
Fruits (dried)			
Prunes	10.0	Prunes	13.0
Raisins	7.5	Raisins	4.0
Peaches	2.0		
Vegetables (fresh)			
Potatoes, baking	97.0	Potatoes, baking	61.5
Tomatoes	61.5	Tomatoes	22.0
Lettuce	40.0	Cabbage	21.5
Onions	35.5	Carrots	20.5
Cucumbers	26.0	Lettuce	17.0
Carrots	25.5	Celery	15.5
Beans, green	23.0	Peppers	12.0
Cabbage	21.0	Squash, yellow	11.5
Celery	14.5	Potatoes, sweet	11.0
Potatoes, sweet	14.5	Avocado	10.0
Squash, yellow	14.5	Potatoes, new	10.0
Potatoes, new	11.5	Turnips	9.0
Peppers	10.5	Cucumbers	8.0
Corn	10.0	Onions	8.0
Avocado	9.0	Beans, green	7.0
Turnips	7.0	Spinach	6.0
Radishes	4.0	Greens	5.0
Rutabagas	3.0	Cauliflower	4.0
Squash, winter	3.0	Rutabagas	4.0
Zucchini	2.0	Broccoli	3.0
Mushrooms	1.5	Radishes	3.0
Asparagus spears	1.0	Squash, winter	3.0
Broccoli	1.0	Eggplant	2.5
Cauliflower	1.0	Zucchini	2.5
Okra	1.0	Mushrooms	2.0
Greens	0.5	Brussels sprouts	1.0

Table 48, continued

First interview ^a		Second interview ^b	
Food item	Market units	Food item	Market units
Vegetables (canned)			
Peas	18.0	Peas	12.0
Corn	17.5	Green beans	11.5
Beets	13.0	Hominy	11.0
Green beans	11.5	Tomatoes	18.0
Tomatoes	11.0	Spinach	9.0
Asparagus spears	10.0	Beets	7.5
Greens	7.0	Mixed vegetables	6.0
Mixed vegetables	6.0	Greens	4.0
Sauerkraut	5.0	Sauerkraut	3.0
Mushrooms	4.0	Asparagus spears	2.5
Spinach	4.0	Corn	2.5
Lima beans	3.0	Water chestnuts	2.0
Mixed bean salad	3.0	Zucchini	2.0
Yams	3.0	Mushrooms	1.5
Green and shelled beans	2.0	Potatoes (instant)	1.5
Potatoes (instant)	2.0	Green and shelled beans	1.0
Bean sprouts	1.0	Lima beans	1.0
Carrots	1.0	Yams	0.5
Chop suey vegetables	1.0		
Mixed chinese vegetables	1.0		
Zucchini	1.0		
Vegetables (frozen)			
Broccoli	15.0	Mixed vegetables	15.5
Mixed vegetables	6.5	Spinach	7.0
Cauliflower	5.0	Corn	6.0
Spinach	4.0	Broccoli	5.0
Brussels sprouts	2.0	Green beans	4.0
Corn on cob	1.0	Lima beans	4.0
Greens	1.0	Rhubarb	4.0
Lima beans	1.0	Asparagus spears	1.0
Okra	1.0	Cauliflower	1.0
Peas	1.0	Greens	1.0
		Okra	1.0
		Peas	1.0
		Potatoes (candied sweet)	1.0
		Squash	1.0

Table 48, continued

First interview ^a		Second interview ^b	
Food item	Market units	Food item	Market units
Meat and meat substitutes (fresh)			
Chicken	140.5	Chicken	76.0
Eggs	48.0	Eggs	35.0
Roast (beef)	45.0	Ground beef	35.0
Ham	32.0	Roast (beef)	18.0
Ground beef	31.0	Stew meat	12.5
Bacon	18.5	Bacon	12.0
Steak (beef)	18.0	Sausage	11.5
Sausage	15.5	Ham	9.5
Fish	12.5	Pork chops	9.5
Roast (pork)	8.0	Steak (beef)	9.5
Pork chops	7.0	Roast (pork)	9.0
Lamb chops	5.5	Beef ribs	3.5
Steak (pork)	4.5	Pork ribs	2.5
Turkey	3.5	Veal roast	2.0
Stew meat	3.0	Chicken livers	1.5
Beef liver	1.5	Lamb chops	1.0
Chicken livers	1.5	Oysters	1.0
Pork ribs	1.5	Pork liver	0.5
Oxtails	1.0		
Shrimp	1.0		
Veal chops	1.0		
Meat and meat substitutes (canned or processed)			
Tuna fish	41.5	Peanut butter	16.5
Luncheon meats	19.0	Tuna fish	13.0
Franks	11.5	Ham salad	8.5
Salmon	10.5	Franks	8.0
Chicken salad	8.5	Bologna	6.0
Bologna	8.0	Chicken salad	4.0
Ham	8.0	Corned beef	4.0
Peanut butter	6.0	Minced clams	3.0
Vienna sausage	6.0	Luncheon meats	2.0
Shrimp	3.0	Potted meat	2.0
Spam	2.0	Salmon	2.0
Corned beef	1.0	Spam	2.0
Ham salad	1.0	Vienna sausage	2.0
Pigs feet	1.0	Dried beef	1.0
Potted meat	1.0	Turkey	1.0

Table 48, continued

First interview ^a		Second interview ^b	
Food item	Market units	Food item	Market units
Sardines	1.0		
Turkey	1.0		
Meat and meat substitutes (frozen)			
Fish fillets	4.0	Fish fillets	11.5
Fish sticks	0.5	Fish sticks	1.5
		Beef	1.0

^a_N = 45.

^b_N = 32.

Table 49--Means for food expenditures in dollars of respondents during first interview period

Food expenditure	Mean	Standard deviation	N
Estimation of food expenditure at the grocery store per month	62.35	± 25.65	52
Estimation of food expenditure away from home per month	12.42	± 23.15	60
Actual food expenditure at the grocery store per month	57.18	± 20.82	45
Amount spent for food at the grocery store per trip	7.01	± 4.62	45
Actual food expenditure away from home per month	8.52	± 12.45	45
Amount spent for food away from home per trip	1.72	± 1.83	45
Total expenditure for food per month	65.71	± 25.61	45

Table 50--Means for percentage of total food expenditure in each food category of the respondents during first interview period

Food category	Mean	Standard deviation	N
Appetizers	.53	+ 1.18	45
Beans	.37	+ 1.03	45
Beverages	12.75	+ 8.75	45
Flour products	6.26	+ 3.42	45
Breakfast foods	3.65	+ 3.92	45
Cheese	4.06	+ 4.07	45
Condiments	2.41	+ 2.76	45
Desserts	3.95	+ 3.57	45
Fats and oils	3.02	+ 2.83	45
Jams, jellies, sugar, and syrups	1.53	+ 2.25	45
Milk and milk products	9.39	+ 7.91	45
Prepared meal items	2.43	+ 3.21	45
Rice	.08	+ 0.27	45
Fruits	10.88	+ 6.80	45
Vegetables	11.96	+ 5.51	45
Meat and meat substitutes	26.73	+ 14.14	45

Table 51--Means for percentage spent for fresh, canned, and frozen fruits, vegetables, and meat and meat substitutes by respondents during first interview period

Food category	Mean	Standard deviation	N
Fruits			
Fresh	68.98	+ 31.84	45
Canned	28.89	+ 31.55	45
Frozen	2.13	+ 10.60	45
Vegetables			
Fresh	66.34	+ 28.43	45
Canned	26.20	+ 28.56	45
Frozen	7.46	+ 13.07	45
Meat and meat substitutes			
Fresh	73.44	+ 27.79	45
Canned	23.56	+ 24.90	45
Frozen	3.00	+ 14.88	45

Table 52--Amount in dollar value of food gifts received by respondents during first interview period

Mean	Standard deviation	N
3.56	+ 4.79	45

Table 53--Shopping and meal purchasing patterns by respondents during first interview period

Pattern	Mean	Standard deviation	N
Number of visits to the grocery store per week	2.65	± 1.43	45
Number of grocery stores visited per week	2.00	± 0.98	45
Number of meals purchased away from home per month	3.16	± 4.53	45

Table 54--Means for percentage of market units purchased within high-, medium-, and low-price categories by respondents during first interview period

Price category	Mean	Standard deviation	N
High	16.10	± 10.04	45
Medium	40.22	± 12.31	45
Low	43.68	± 14.83	45

Table 55--Means for percentage of market units purchased within each food and price category by respondents during first interview period

Food-price category	Mean	Standard deviation	N
Appetizers			
High	86.45	+ 31.26	12
Medium	10.00	+ 27.69	12
Low	3.55	+ 11.79	12
Beans			
High	28.57	+ 45.17	7
Medium	42.86	+ 49.49	7
Low	28.57	+ 45.18	7
Beverages			
High	17.06	+ 29.89	42
Medium	48.04	+ 34.50	42
Low	34.90	+ 32.70	42
Flour products			
High	6.46	+ 11.65	44
Medium	26.74	+ 32.92	44
Low	66.80	+ 32.96	44
Breakfast foods			
High	10.90	+ 23.18	31
Medium	58.56	+ 37.33	31
Low	30.54	+ 36.05	31
Cheese			
High	54.38	+ 40.48	32
Medium	26.56	+ 33.55	32
Low	19.06	+ 31.69	32
Condiments			
High	25.08	+ 36.47	34
Medium	10.86	+ 23.53	34
Low	64.06	+ 41.88	34
Desserts			
High	22.00	+ 29.32	34
Medium	28.87	+ 33.77	34
Low	49.13	+ 37.72	34
Fats and oils			
High	12.46	+ 26.80	32
Medium	36.83	+ 43.07	32
Low	50.71	+ 41.20	32

Table 55, continued

Food-price category	Mean	Standard deviation	N
Jams, jellies, sugar, and syrups			
High	13.68	+ 25.38	18
Medium	27.42	+ 32.97	18
Low	58.90	+ 40.74	18
Milk and milk products			
High	18.46	+ 27.14	42
Medium	53.02	+ 35.09	42
Low	28.52	+ 31.78	42
Prepared meal items			
High	12.99	+ 24.28	28
Medium	55.56	+ 39.22	28
Low	31.45	+ 38.70	28
Rice			
High	25.00	+ 43.30	4
Medium	25.00	+ 43.30	4
Low	50.00	+ 50.00	4
Fruits (fresh)			
High	14.66	+ 15.14	39
Medium	47.13	+ 28.16	39
Low	38.21	+ 27.91	39
Fruits (canned)			
High	21.22	+ 34.88	29
Medium	61.00	+ 42.02	29
Low	17.78	+ 32.59	29
Fruits (frozen)			
High	0.00	+ 0.00	2
Medium	100.00	+ 0.00	2
Low	0.00	+ 0.00	2
Fruits (total)			
High	17.27	+ 20.18	43
Medium	46.18	+ 29.72	43
Low	36.43	+ 28.90	43
Vegetables (fresh)			
High	5.94	+ 9.53	43
Medium	27.12	+ 21.94	43
Low	64.68	+ 25.50	43

Table 55, continued

Food-price category	Mean	Standard deviation	N
Vegatables (canned)			
High	29.86	+ 40.19	34
Medium	49.89	+ 37.18	34
Low	20.24	+ 30.65	34
Vegatables (frozen)			
High	70.82	+ 34.78	13
Medium	23.41	+ 35.68	13
Low	5.77	+ 14.39	13
Vegatables (total)			
High	15.51	+ 18.30	45
Medium	33.49	+ 23.44	45
Low	51.00	+ 24.29	45
Meat and meat substitutes (fresh)			
High	11.44	+ 17.53	43
Medium	34.96	+ 30.70	43
Low	53.60	+ 36.16	43
Meat and meat substitutes (canned)			
High	10.23	+ 27.26	32
Medium	32.85	+ 40.93	32
Low	56.92	+ 43.24	32
Meat and meat substitutes (frozen)			
High	0.00	+ 0.00	5
Medium	80.00	+ 40.00	5
Low	20.00	+ 40.00	5
Meat and meat substitutes (total)			
High	10.53	+ 15.74	45
Medium	36.03	+ 29.60	45
Low	53.45	+ 33.37	45

Table 56--Means for number of times respondents ate with relatives and friends during first interview period

Variable	Mean	Standard deviation	N
Relatives	2.24	± 5.11	45
Friends	1.34	± 1.78	45

Table 57--Correlation coefficients of predictor variables

	Years of formal education	Age	Income	Medical bills	Medical insurance payments	Relatives index	Friends index	Social activity index	Number of visits to store/week	Social- adventuresome index	Frugal- utilitarian index	Qualitative- pleasurable index	Nutritious healthful index
Years of formal education	--												
Age	.11	--											
Income	.60	.03	--										
Medical bills	-.05	-.21	-.03	--									
Medical insurance payments	.28	.22	.05	.11	--								
Relatives index	.20	.21	.26	.03	.36	--							
Friends index	.46	.16	.16	-.21	.39	.33	--						
Social activity index	.54	-.13	.39	-.22	.05	.25	.54	--					
Number of visits to store/week	.21	.06	.14	.07	.38	.41	.58	.18	--				
Social-adventuresome index	-.17	-.27	-.13	.31	.17	-.47	-.40	-.59	-.14	--			
Frugal-utilitarian index	.28	-.03	.15	.06	.22	-.27	.26	.18	.40	.12	--		
Qualitative-pleasurable index	.33	-.11	.06	.03	.24	-.20	.40	.19	.08	.31	.17	--	
Nutritious-healthful index	-.04	-.13	-.22	-.13	-.44	-.37	-.33	-.03	.40	-.01	-.14	.25	--

VITA

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She attended Florida State University from June 1971, through June 1975, and received the Bachelor of Science degree in Food and Nutrition Science.

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