University of Tennessee, Knoxville
Trace: Tennessee Research and Creative Exchange

Doctoral Dissertations | Graduate School

3-1986

Relationships of Self-Concept, Food and Nutrition Attitudes and Knowledge, and Health Habits to Food Selection and Nutrient Intake

Diane Jean Palmer Libby
University of Tennessee, Knoxville

Recommended Citation

Palmer Libby, Diane Jean, "Relationships of Self-Concept, Food and Nutrition Attitudes and Knowledge, and Health Habits to Food Selection and Nutrient Intake. " PhD diss., University of Tennessee, 1986.
https://trace.tennessee.edu/utk_graddiss/3792

This Dissertation is brought to you for free and open access by the Graduate School at Trace: Tennessee Research and Creative Exchange. It has been accepted for inclusion in Doctoral Dissertations by an authorized administrator of Trace: Tennessee Research and Creative Exchange. For more information, please contact trace@utk.edu.

To the Graduate Council:

I am submitting herewith a dissertation written by Diane Jean Palmer Libby entitled "Relationships of Self-Concept, Food and Nutrition Attitudes and Knowledge, and Health Habits to Food Selection and Nutrient Intake." I have examined the final electronic copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Human Ecology.

Jean D. Skinner, Major Professor

We have read this dissertation and recommend its acceptance:

Betty Ruth Carruth, Roy E. Beauchene, Jo Lynn Cunningham

Accepted for the Council:
Dixie L. Thompson

Vice Provost and Dean of the Graduate School

(Original signatures are on file with official student records.)

To the Graduate Council:

I am submitting herewith a dissertation written by Diane Jean Palmer Libby entitled "Relationships of Self-Concept, Food and Nutrition Attitudes and Knowledge, and Health Habits to Food Selection and Nutrient Intake." I have examined the final copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Home Economics.

Jean D. Skinner

Jean D. Skinner, Major Professor

We have read this dissertation
and recommend its acceptance:

Betty Ruth Carruth

Roy E Beaudoin

Jo Lyn Cunningham

Accepted for the Council:

Vice Provost and
Dean of The Graduate School

RELATIONSHIPS OF SELF-CONCEPT, FOOD AND NUTRITION ATTITUDES AND KNOWLEDGE, AND HEALTH HABITS TO FOOD SELECTION AND NUTRIENT INTAKE

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

Diane Jean Palmer Libby

March 1986

ACKNOWLEDGEMENTS

I wish to thank my major professor, Jean D. Skinner, and the members of my committee, Roy Beauchene, Betty Ruth Carruth, and Jo Lynn Cunningham, for their assistance and advice during the dissertation research. I also wish to thank the participants for completing the questionnaire and Bob Muenchen and Barbara Benson for technical assistance.

ABSTRACT

To examine the relationships between self-concept and food- and nutrition-related behavior, information was collected from 153 single women ages 18-35. Participants were contacted through their places of employment and represented a variety of occupations. Each participant had an educational level between a high school diploma and a four-year college degree.

Participants completed a questionnaire requesting information about demographic facts, attitudes toward self, attitudes toward the importance of food and nutrition, nutrition knowledge, and health habits. Each participant also completed a three-day food record. Factor analysis of the attitudes toward self, attitudes toward the importance of food and nutrition, and health habits variables yielded 14 meaningful factors. These factors and nutrition knowledge were evaluated for relationships with food selection and nutrient intake.

Participants consumed <75% of the Recommended Dietary Allowances (RDA) for energy, calcium, and iron and >125% of the RDA for protein. Snacks were the source of about 17% of calories. Mean score on the 25-point nutrition knowledge test was 14.8 $\pm$ 3.6.

Scores on one of the factors, Super Person (leader, self-confident, and aggressive) were negatively correlated with 5 of the 15 dietary components studied. Scores on Your

Own Thing also were negatively correlated with several dietary components. Scores on the self-perception of a Traditional orientation to life factor (help others and work hard) and the self-perception of being Careful in other health areas factor were postively related to dietary patterns. Scores on the attitude that Nutrition Is Important factor and nutrition knowledge also were positively related to food consumption and nutrient intake.

TABLE OF CONTENTS

CHAPTER PAGE

CHAPTER PAGE

LIST OF TABLES

TABLE PAGE

CHAPTER I

INTRODUCTION

To understand people's selection of food and to encourage their choice of nutritious foods, nutrition researchers and nutrition educators have studied characteristics that are related to food selection. The relationships of nutrition-related knowledge and food and nutrition attitudes to food selection have been reported for various populations and under various conditions (1-3). Age, gender, race/ethnic group, socioeconomic status, and household size (4-6) also have been examined to evaluate their relationships to food selection. Another characteristic, self-concept (the perception of oneself), influences all that a person thinks and does (7). Therefore, self-concept may be related to food selection. Self-concept has been found to be positively related to diet quality in young married women (8); however, self-esteem has been found to be unrelated to diet quality of the elderly (9). The relationships among self-concept and attitudes toward food and nutrition, nutrition knowledge, and behavior related to food selection need to be researched concurrently in a single population. Because young adult women are a nutritionally vulnerable group, this is a critical group for examination of these relationships. In addition, this age group has received little attention in the literature with

the exception of studies of college students and pregnant women. Therefore, the primary objective of this study was to examine the relationships of self-concept, attitudes toward food and nutrition, nutrition knowledge, and health habits to food selection and nutrient intake in employed young adult women.

Conceptual Framework

Attitudes toward food and nutrition, knowledge of food and nutrition, and food consumption patterns have been found to be related, with stronger relationships between attitudes and knowledge (2) and attitudes and practice than between knowledge and food-related behavior (3). Healthful habits in one area have been found to be related to healthful habits in another area of life (10). Because self-concept influences all areas of life (7), its relationships to attitudes toward food and nutrition, nutrition knowledge, health habits, and food selection justify examination.

Behavior is controlled by beliefs (11) and/or related habits (10). Because self-concept, attitudes toward food and nutrition, and nutrition knowledge are beliefs, and health habits are behaviors related to food selection, it is hypothesized that self-concept, attitudes toward food and nutrition, knowledge about food and nutrition, and health habits are all interrelated and that they all influence food selection and nutrient intake (Figure 1).

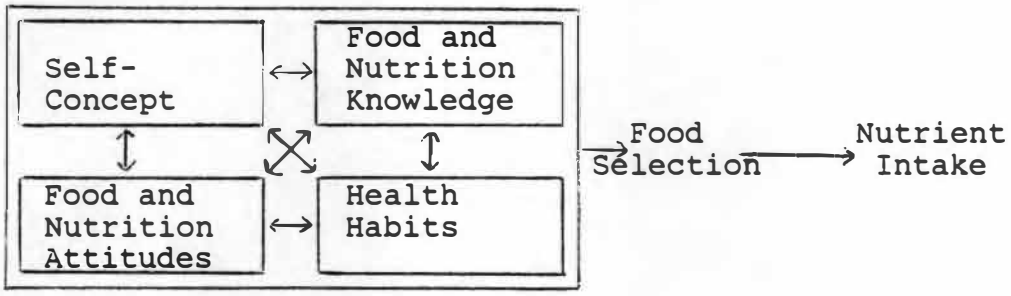


Figure 1. Relationship of cognitive and behavioral variables in food selection.

Definition of Terms

The following are terms and their definitions as used in this study:

1. Self-concept is the perception of one's own attributes, including self-image (personality traits), personal orientation (outlook on life), and perceived body size.

2. Food and nutrition attitudes are emotionally based dispositions toward the importance of selecting foods for consumption that contain substances that the body needs.

3. Food and nutrition knowledge is information about the relationships of nutrition to health, food-related behavior, properties of foods, and the process of resolving food- and nutrition-related concerns (12).

4. Health habits are consistent behaviors related to care of one's body.

5. Food selection is the choice of items that provide nourishment to the body.

6. Nutrient intake is the consumption of substances found in the food selected for consumption that are used by the body for energy, growth, and maintenance.

Assumptions

Assumptions necessary for this study were:

1. Good nutritional status is a positive aspect of one's life.

2. Adults have a basic self-concept that is stable over time.

3. The process of recording food consumed does not substantially alter food consumption.

4. Food consumed on three days of recording is representative of the usual food consumption.

CHAPTER II

LITERATURE REVIEW

Many factors in a person's lifestyle and general attitude toward life may influence the choice of foods and, consequently, the nutrients available to the body. This literature review is an examination of theories and research related to lifestyle and attitudes as they affect food selection and nutrient intake.

Self-Concept

General Attitudes Toward Self

A person may possess many attitudes toward self. One group of attitudes, self-concept, has been defined as "the individual who is known to himself" (13, p. 1). Self-concept includes attributes that the person perceives herself/himself to possess as well as the perception of other's responses toward self (14). It includes, as presented by James (15), a person's position in the social structure and, as expressed by Mead (16), how one sees oneself as a social object. This general area of social status, sometimes called self-esteem (17), is just one facet of self-concept. Also included in self-concept are self-perceived attributes of physical appearance, personality features, moral characteristics, and general attitude toward life (18). Although self-concept is changeable over time

and varies with the situation (19-21), each person has a stable core of attitudes toward self that limits all of that person's perceptions, intentions, thoughts, and actions (7, 22). Thus, if a person's perceptions, intentions, thoughts, and actions are directed and limited by attitudes toward self, then food selection and action may be directed and limited by attitudes toward self.

Attitudes Toward Body Size

The relationship of attitudes toward the body and how these attitudes affect general attitudes toward the self varies with the relative importance placed on body image as a component of the total image of self (23, 24). Obesity also has been found to be related to a number of social variables (25), including low social status and membership in families that have been in the United States only a short period of time (26). In these subgroups of society, obesity may be considered the norm and, therefore, may be a positive factor in self-acceptance as a member of that segment of society.

In studies of adults, obese subjects have had more depression, anxiety, and impulsiveness than the nonobese (27) and described themselves as more nervous than the nonobese (28). When obese adolescent girls were compared with nonobese adolescent girls, the obese perceived situations in a more passive manner than did the nonobese (29).

Several researchers found that, although of normal weight, many junior high, high school, and college girls were dissatisfied with their size and wished to lose weight (30-34). It also was reported that perceived weight was higher for dieters than for nondieters (35). Although ideal weight and actual weight were in agreement for normal subjects (36), both obese and anorexic individuals were found to have distorted body images (37-40).

Attitudes Toward Self and Body Size as They Are Related to Food Selection

Attitudes toward food and the eating environment have been researched extensively, but attitude toward the self as it is related to food consumption has not been as thoroughly researched. Food faddists have been reported to have more rigid personalities than those who are not food faddists (41). Also, flexibility in attitude and personality has been found to be an important characteristic in predicting nutrition-related behavior (42).

There are conflicting results from several studies in which relationships between personality factors and food- and nutrition-related behavior have been examined. Depression, loneliness, immaturity, and anxiety had an overall negative effect on the nutritional quality of food intake as evaluated by three-day food records of female community leaders (43). However, eccentric food-related behavior did not necessarily result in a decreased

nutritional status, as evaluated by anthropometric measures and blood levels of six nutrients, unless this behavior was associated with a negative mental state. In another study (44), girls with good quality diets were compared to girls with poor quality diets. No differences were found between the groups when compared on the personality traits of self-esteem, social recognition, and energy level. Self-esteem has been found to have no effect on diet quality of the elderly (9). Conversely, one of these same researchers found that young adult women with a positive self-concept had better quality diets than those with a less positive self-concept (8). Personal values and lifestyle also are related to food habits, as adults with similar lifestyles and values have similar beverage consumption patterns (45).

Although there have been many studies focused on body size, there have been relatively few studies in which the relationship of body size and food habits has been studied in a normal population. In a study of normal and obese adolescent girls, obese adolescent girls perceived themselves to eat greater quantities and to eat more frequently than their peers; however, their actual food consumption was similar and the area of difference was their degree of activity (29).

Food and Nutrition Attitudes and Knowledge

Researchers have indicated that positive attitudes toward an object relate favorably to knowledge about that object (46). However, researchers in nutrition have not found the relationship between attitudes and knowledge to be consistent.

Students have been the subjects of many studies. Results of one descriptive study indicate that high school girls, although they had a greater interest about weight control than had boys, had less knowledge in the areas of weight control and energy sources (47).

Although studies of a descriptive nature are informative, studies that are based on an experimental design yield information about change in the area of food and nutrition attitudes and knowledge. Attitudes toward food and nutrition were unaffected by high school classroom nutrition units (48, 49), although nutrition knowledge was improved by this form of education (50). In contrast to this, nutrition education improved nutrition knowledge and nutrition attitudes of elementary students (51, 52).

Teachers, as well as students, have been studied. A preparatory course for teachers before they taught nutrition improved both teachers' and students' nutrition knowledge (52). Teachers' nutritional knowledge has been found to be related to changes in students' nutritional knowledge (53), and secondary teachers who included food and nutrition

content in their classes had higher nutrition knowledge and more favorable attitudes toward teaching nutrition than those who did not teach food or nutrition (54, 55).

Studies concerning food and nutrition knowledge and attitudes and their effect on food- and nutrition-related behavior have not been limited to the classroom. In studies with elderly subjects, researchers have reported that practices were more related to food and nutrition attitudes than to age (56) and that there was a positive correlation between nutrition knowledge and the attitude that nutrition is important (2). Food-related attitudes differed between food cooperative shoppers and supermarket shoppers and between vegetarians and nonvegetarians (57, 58). Nutrition knowledge was no different for food cooperative and supermarket shoppers, but vegetarians scored higher in nutrition knowledge than nonvegetarians (58, 59).

Young adults have been subjects for many food and nutrition attitude and knowledge studies. The importance of nutrition has been rated low by young married couples (60) and negatively related to the purchase of convenience foods (61). However, attitude toward the importance of nutrition was positively related to attendance at prenatal classes (62). Although the mother's attitude toward nutrition has been found not to be related to the diet of their preschool age children, nutrition knowledge was related to the quality of the children's diet (63), and application of nutrition

knowledge has been found to differ with the ages of the children in the family (64). Young people's food preferences have been found to be more related to subculture than to parents' preferences (65), but the correlation between children's and parents' food preferences was found to be greater than what could be attributed to culture (66).

Other studies have found little relationship between nutrition knowledge and food- and nutrition-related behavior. Consistent with the Schwartz model (3), which shows relationships between nutrition knowledge and attitudes toward food and nutrition and between attitudes and practices but not between knowledge and practices, nutrition attitudes of parents were found to be more highly related to food purchasing practices than was nutrition knowledge (67). Nutrition knowledge and attitudes of female athletes were related, but neither was related to dietary intake (68).

Demographic characteristics also have been related to food and nutrition attitudes and knowledge. Women in homemaker clubs were able to differentiate between food facts and fallacies better than were low income women or 4-H youth (69). Adults' attitudes toward food have differed with race and religion (70), but nutrition knowledge was unrelated to age and educational level in university employed men (71).

Health Habits

Although good nutritional intake may be considered a health habit, the relationships of nutrition to other health habits or the relationships between health habits and self-concept have been investigated in relatively few studies. For the self-consistent person, if one is socially conscious and concerned about quality of life, one will reflect this concern in one's lifestyle. Belloc and Breslow (10) found that people who follow good practices of health (adequate sleep, regular meals and physical activity, moderate alcohol consumption, and abstinence from cigarettes) had better health (freedom from disability, absence of chronic conditions or symptoms, and a high energy level) than those who followed only some of the practices.

Health habits that are consistent with the self-concept have been demonstrated in non-food-related areas of consumer behavior. Becoming a nonsmoker requires a change in the self-image (72). If the new self is perceived as a nonsmoker, the person will be a nonsmoker to align himself/herself with the new self-perception.

Being self-actualizing has been found to be related to observed purchase of phosphate-free detergent, to reported past purchase of phosphate-free detergent, and to reported purchase of lead-free gasoline. In spite of the higher cost of lead-free gasoline and clothes that may be less than completely white and bright because of the nonphosphate

detergent, the self-actualizing person purchased these products, an action that was consistent with personal values (73).

Young Adults' Food Selection and Nutrient Intake

Young adulthood is a time of transition. One of the transitions of young adults is the development of responsibility for their own food selection.

College students on prepaid meal plans, which would constitute a limited responsibility for food selection, had better nutrient intakes but skipped more meals than those not on meal plans (74). Breakfast was the meal most often skipped by college students in other studies (75, 76). Snacking has been reported to be part of the young person's lifestyle (77, 78), and for this age group, the snack may be the meal, not an extra (32). Young adults have been found to consume fewer desserts and more low-calorie beverages than those of other ages (5). Also, young adults consume less bread and cereal and less milk than those in other age groups (5).

Another food habit of the young adult is the habit of "eating out." One-fourth of the food dollar of the young adult is spent on food away from home (79).

Family situation and gender also influence food choices. Spouses have more influence on food selection than do parents or friends, and husbands have more influence than

do wives (80). Males also consume greater quantities of food than do females (81).

Nutrients in the diets of young adults also have been analyzed. Iron is the nutrient most frequently reported to be lacking in the diet (81-84), particularly in women's diets. Calcium also is low in women's diets (81), primarily because of lower milk consumption than in the diets of males, and protein intake is high for both men and women.

Educational Needs

One reason for assessing food selection and nutrient intake is to facilitate better food selection and nutrient intake. Although it frequently is assumed that the American public lacks nutrition knowledge (85), knowledge does not guarantee appropriate action. As pointed out by Schwartz (3), there often is not a significant relationship between nutrition knowledge and practice. Moreover, behavior is not always consistent with attitudes (86). Additional work needs to be done to reach individuals at their present stage of knowledge, attitudes, and behavior and to teach for transfer of the information from the cognitive area to action (87, 88). Although people with a low status in life may not be motivated to have an improved lifestyle (89), it has been pointed out that persons with low self-esteem are more readily influenced by persuasive communication than are those not suffering from feelings of personal inadequacy

(90). Also, those with low levels of knowledge are more susceptible to persuasive communication and to misinterpretation of information than those with a higher level of knowledge (91).

Instruments for Measurement of Variables

Few studies have been done in which the relationships of self-concept to food- and nutrition-related behavior have been examined. Examples of self-concept indexes that have been used in nutrition research are Gough and Heilbrum's Adjective Check List, as used by Schafer (8); Sherwood's Self-Concept Inventory, as used by Schafer and Keith (9); self-rating of self-esteem, social recognition, and energy level as done by Macdonald, Wearring, and Moase (44); and the Rehfisch test as used by Jalso, Burns, and Rivers (41) to evaluate rigidity.

Other sources of measures of self-concept include references devoted entirely to assessment inventories. Bonjean, Hill, and McLemore (92) listed examples of self-concept inventories, and Buros (93-100) listed examples and gave some information on what area of the self is assessed. Evaluations were included for some of the self-inventories. Robinson and Shaver (101, 102) have printed assessment inventories with evaluative information, and Wylie (13, 103) and Diggory (104) have presented examples and evaluations of these examples.

Indexes with items appropriate to assess self-concept in young adult women include those of Kinch, Falk, and Anderson (105); Turner (106); and Turner and Schutte (107). Berger's Self-Acceptance Scale; Hunt, Snyder, and Cobb's Scale of Low Self-Esteem; Rosenberg's Self-Esteem Scale; and Sherwood's Inventory of Self-Concept (101) all have aspects that could be useful for a questionnaire to evaluate self-concept. Recency of development of the test so that questions will be pertinent to current trends and appropriateness of the questions for the participants of the study need to be considered in selection of a self-index.

Illustrations of body size have been found to be effective in assessing a person's perceived weight. The diagrams used by Storz (33) and Storz and Green (34) or those used by Crisp and Kalucy (38) would be appropriate for this purpose.

Two lifestyle questionnaires are the Lifestyle Assessment Questionnaire (108) and Health Style--A Self Test (109). Both of these questionnaires assess information appropriate to relate lifestyle to food selection. The Lifestyle Assessment Questionnaire is designed for a college student population. Health Style--A Self Test is broad in scope and is designed for an adult population.

Assessment of nutrition knowledge frequently is done by use of objective tests. True-false (3, 50, 110), true-false and multiple choice (2, 54, 111, 112), multiple choice

(12, 51, 52, 55), and indication of degree of certainty in addition to response (53, 113) have been used. Each of these tests contain items appropriate for ascertaining nutrition knowledge for the purpose of relating that information to self-concept. Recency of development of the test so that items reflect current knowledge, accuracy of the items, appropriateness of the subject matter, and difficulty level for the intended audience are factors to consider in selection of a test.

Although much work has been done on developing instruments to measure nutrition-related attitudes (114), the quality of attitude-measuring instruments needs to be improved (115). If nutrition education is going to deal with both attitudes and knowledge, then the attitudes to be changed must be defined (116, 117). Establishing reliability and validity for tests is an important aspect of attitude measurement (118-121). Evaluation instruments for attitudes toward nutrition and food include those by Carruth and Anderson (118) and Lohr and Carruth (119), and those by Grotkowski and Sims (2), Rosander and Sims (122), and Sims (123, 124). In selection of an instrument to assess attitudes, an instrument that is specific to the attitudes to be assessed needs to be selected.

Although there are many methods available for assessing dietary intake (125, 126), a food record provides relatively accurate information (127, 128). It requires less

researcher time than multiple 24-hour dietary recalls and is more adaptable to nutrient analysis than is the diet history. A three-day record is considered a minimum time for reliable individual dietary data. Records kept for three nonconsecutive days, including one weekend day, have been found to be best for evaluation, as eating patterns are different on weekends than on weekdays (129-132).

Instruments must be selected for accuracy of assessment of the parameters under study and for appropriateness to the participants of the study. The quality of the research is, at least in part, dependent on the quality of the instruments used. With the use of appropriate instruments and assessment of multiple variables, a better understanding of influences on people's food selection may be obtained.

CHAPTER III

METHODS

This study was designed to examine the relationships of attitudes toward self, attitudes toward the importance of food and nutrition, nutrition knowledge, and health habits to food selection and nutrient intake. It was hypothesized that: 1. attitudes toward self are positively related to food selection and nutrient intake; 2. attitudes toward the importance of food and nutrition are positively related to food selection and nutrient intake; 3. nutrition knowledge is positively related to food selection and nutrient intake; and 4. health habits are positively related to food selection and nutrient intake.

Design and Sample

The University of Tennessee Agricultural Experiment Station provided funding for this study, which was part of a larger study on factors influencing eating patterns of adolescents and young adults in East Tennessee; therefore, the study was limited to residents of East Tennessee. Constraints on gender, age, living situation, education, and hours of employment limited the variability of these characteristics, which might influence the food consumption patterns of the participants of the study.

Because adult females consume less food than adult males, their nutrient intake may be less adequate than that of adult males. Therefore, because adult males and females differ in food habits and nutrient intake and because intakes of females often are less adequate, the study was limited to women.

To evaluate the influence of attitudes toward self on food selection, it was advantageous to have physically mature participants because they generally have a more stable self-concept than individuals who are developing physically. Thus, young adults, an age group that is physically mature but still forming life patterns, was the population selected. For the purpose of this study, young adults included those ages 18 through 35.

Because the husband may have a strong influence on food selection, only single women, or those not living with their husbands, were included in the sample. Presence of children in the home also was assessed but not used as a criterion for sample selection or rejection.

To achieve homogeneity, the range of educational levels of the sample also was limited. Only participants who had a high school or general equivalency diploma but did not have a baccalaureate degree were included.

By using only participants who were employed more than halftime, variability in employment status was limited. Also, the use of participants who were single and employed

at least halftime provided a situation where food consumption likely would not be greatly limited by a lack of adequate money.

To avoid bias in attitudes toward self that might be present if the participants were contacted through various social situations, employment site was chosen as the source of original contact. The researcher contacted 28 places of employment, representing a variety of occupations. Ten places of employment (Appendix A) provided names and work addresses or telephone numbers of possible participants.

Instrument Development

A 92-item questionnaire and three-day food record form were developed, using items from previous studies as well as items new to this study (Appendix B). General demographic information was obtained for the purpose of identifying individuals for inclusion in the study and for description of the participants of the study.

Attitudes toward self were evaluated in three areas: self-image, personal orientation, and perceived body size. Kinch, Falk, and Anderson's (105) 12-item Self-Image Inventory, which has recorded reliabilities ranging from .34 to .89, was used to evaluate self-image. This inventory was developed specifically to measure self-image and has been used extensively for that purpose. Turner's (106) Route to Self-Discovery and responses to Turner and Schutte's (107)

True-Self Method were used to evaluate personal orientation. The combination of these two evaluative methods from the same author provided a broader range of information than would either one if used alone. Perceived body size was ascertained by the participants' answers to three questions: one concerning their perceived body size from a selection of line-drawings from Storz and Greene (34), which were developed for use with a female population of average weight range, and two items related to weight that were specific to this study.

Attitudes toward the importance of food and nutrition were evaluated by use of the ten questions included in the attitude factor "Nutrition is Important" from Sims (124). This scale, which has recorded reliabilities ranging from .76 to .84 (2, 124), is specific for the purpose of measuring the attitude of importance of food and nutrition. Nutrition knowledge was determined by use of the 25 knowledge items common to the adult forms of the Comprehensive Assessment of Nutrition Knowledge, Attitudes, and Practices (12). This test, which has a recorded reliability of .82, was developed to assess a range of nutritional information deemed appropriate for adults. Health habits were ascertained by the use of 11 questions adapted from Health Style--A Self Test (109) and four questions specific to this study. These 15 questions assessed a broad range of health habit information.

Food selection was determined by use of a three-day food record form developed by Salvetti (133). Young women were asked to record food consumption for a Tuesday, Thursday, and Saturday. Additional questions pertaining to usual consumption of specific food items were included in the questionnaire.

After The University of Tennessee, Knoxville, Committee on Research Participation approved the project, a pilot study of 21 participants was conducted. Based on the evaluation of the young women's answers, response choices for the question about other adults in the living situation (number 87) were reworded. Response choices in the knowledge section were put in alphabetical or numerical order prior to the printing of the final form of the survey instrument.

Data Collection

Data were collected over a period of 9 months: August, 1984, to April, 1985. The researcher personally visited all prospective participants, each of whom, either as an individual or as a member of a group of not greater than three, took part in a discussion that included an examination of the survey instrument, a brief description of each section, and directions for recording dietary data. The researcher informed prospective participants that participation was voluntary and that although their employer

had provided their names and work place information, the employer would have no knowledge as to actual participation in the study nor a report of any data collected for the study.

If the prospective participant agreed to take part in the study, the survey instrument was left with her. The researcher returned one week later to pick up the completed form. At that time, the researcher examined the completed instrument for unanswered questions and incomplete dietary data and requested participants complete missing information.

Completed questionnaires were confidential. If a participant desired a copy of her nutrient intake, expressed as a percent of the Recommended Dietary Allowances (RDA) (134), she signed her name to the dietary portion of the survey, and the analysis was mailed to her. Each participant was assigned a code number, and the names of participants who requested diet analyses were removed from the survey forms at the time of coding.

Data Analysis

Frequency distribution of participants' demographic characteristics and dietary behavior were tabulated, using the Statistical Analysis System (SAS) (135) FREQ procedure to provide descriptive data about the participants. Responses to the survey questions were grouped into scales

by use of factor analysis and the scale scores compared with the food consumption and nutrient intake data.

Correct responses to the nutrition knowledge portion of the survey were summed to provide a nutrition knowledge score. Because the knowledge test had been developed to cover a breadth of food and nutrition topics at a depth deemed by nutrition and education professionals to be appropriate for an adult population, the entire 25-question knowledge test was used to develop a knowledge score.

Some of the other scales used as sources of survey questions had the possibility of having strongly related questions. Therefore, rather than analyzing the data with the existing scales, new scales were developed using factor analysis. Answers to questions on attitudes toward self, attitudes toward the importance of food and nutrition, and health habits were included in the factor analysis. Preliminary analysis, using the Statistical Package for the Social Sciences (SPSS) (136) Factor PA1, SPSS Factor Image, and SAS (137) Factor ML procedures provided information for the required number of factors and variables common to factors determined by different methods. SAS (137) Factor PRINIT, with Varimax rotation, which is a procedure that provides iterated principal factor analysis with orthogonal rotation, was used to produce the factors used in the analysis of this study. Factor scores then were used to evaluate relationships of attitude toward self, attitude

toward the importance of food and nutrition, and health habits to food selection and nutrient intake.

Validity of the factor scales was established by the factor analysis. Content validity of the nutrition knowledge test had been established previously with the test covering a range of participants at a level appropriate for adults (12).

Kuder-Richardson 21' (138) was used to determine reliability for the knowledge test. The coefficient of generalizability (139) was used for determining the reliability of the factors. Reliabilities of the knowledge test and the factors are listed in Table 1. Reliabilities of the original scales (140, 141) are listed in Appendix C.

Food selection and nutrient intakes were derived from the three-day food records. Three-day food records have been established as a relatively accurate source of dietary information (127-132). Food selection included the type of food and the meal pattern. Initially, 20 categories were used for types of food (Appendix D) (81). Subsequently, data from the 20 food categories were collapsed into four food groups. Meal patterns were analyzed by time of food consumption and calories consumed at each time. An eating occasion between 6:00 and 10:00 a.m. that consisted of a food or calorie-containing beverage was classified as breakfast. If more than one such eating occasion occurred, the one with the greatest number of foods was classified as

Table 1. Reliability of Knowledge Test and Factors Used for Young Women.[a]

	Number of Items	Reliability
Test[b]		
Nutrition knowledge	25	.63
	Number of items > .40 primary loading	
Factor[c]		
1-Super Person	4	.66
2-Body Size	4	.60
3-Nice Person	4	.57
4-Worry About Nutrition	4	.57
5-Nutrition is Important	4	.53
6-Seat Belts	2	.53
7-Your Own Thing	3	.36
8-Don't Use Salt	2	.36
9-Caring About Others	2	.32
10-Stress Management	2	.26
11-Relax	2	.26
12-Traditional	2	.25
13-Careful	2	.22
14-Time Management	2	.10

[a] $N = 153$.

[b] K-R21': $\frac{1-.8M(K-M).}{K(\sigma^2)}$ K = number of variables; M = mean of test; σ = standard deviation

[c] $\frac{n}{n-1}\ 1-\frac{1}{\lambda}$. n = number of variables; λ = eigenvalue

breakfast. Similarily, the largest calorie-containing eating occasion between 11:00 a.m. and 2:30 p.m. was classified as lunch, and the largest calorie-containing eating occasion between 3:30 p.m. and 10:00 p.m. was classified as the evening meal. All other eating occasions were classified as snacks (142).

Nutrient intakes were calculated from the three-day food records using the USDA Nutrition Data Base, Standard Reference, Release 5 Tape (143). This tape has the data from revised Handbook 8, sections 1-12 (Appendix E). For foods not included in the revised data base, data from the earlier versions of Handbook 8 (144) were included on the tape.

Intakes were analyzed for consumption of energy, protein, fat, carbohydrate, dietary fiber, calcium, iron, magnesium, phosphorus, potassium, sodium, zinc, copper, manganese, vitamin A, alpha tocopherol, ascorbic acid, thiamin, riboflavin, niacin, pantothenic acid, B_6, folacin, B_{12}, and cholesterol. Data also were expressed on a per 1,000 calorie basis, which provided nutrient density information.

Nutrient intake comparisons were done on the basis of the RDA (134). An RDA score based on 0 points for $\leq$33% of the RDA for the item, 1 point for >33% but $\leq$66% of the RDA and 2 points for >66% of the RDA was adapted for this study (53). Thus, with 10 items in the scale, 0-20 was the

possible range of scores. Items included were those that both have an established RDA and also have complete enough data in the tables of food composition to yield data representative of nutrients in foods. Data for energy, protein, calcium, iron, phosphorus, vitamin A, ascorbic acid, thiamin, riboflavin, and niacin were used to develop the RDA score.

Analysis of variance, using the SAS (137) GLM procedure, was used to determine homogeneity of the sample beyond the selection criteria. Correlation, using the SAS procedure (135) and regression, using SAS (137) GLM, were used to evaluate the hypotheses. A significance level of ≤ 0.05 was the criterion used for all analyses.

CHAPTER IV

RESULTS AND DISCUSSION

To facilitate examination of the research hypotheses, descriptions of the variables and of the participants will be presented and discussed. Following this, the relationships among the variables will be presented, and then the information will be summarized within the context of the research hypotheses.

Names and phone numbers or work addresses of 228 possible participants were supplied by ten employers. Of the possible participants, 187 (82%) agreed to be participants and completed the survey forms. Of those who completed forms, 153 (82%) met the defined criteria for participation.

Demographic Characteristics

The demographic characteristics of the participants of the study are summarized in Table 2. The racial/ethnic distribution of the sample was 2% American Indian, 20% black, and 78% white. This is a larger percentage of nonwhites than is found in the general population of East Tennessee. Several of the places of employment that supplied names of possible participants are equal-opportunity employers, resulting in a racial mix among the employees that does not reflect the racial mix of the community.

Table 2. Demographic and Personal Characteristics of Young Women.[a]

Characteristic	% of Participants
Race/Ethnic group	
American Indian	2
Black	20
White	78
Education	
High school diploma	27
General equivalency diploma	2
Some college	55
Associate/technical degree	16
Income	
$0 - $5,000	6
5,001 - 10,000	51
10,001 - 15,000	38
15,001 - 20,000	4
20,001 - 25,000	1
Physical activity of work	
Very light	75
Light	13
Moderate	11
Living conditions	
Alone	34
With parents	38
With relatives	8
With roommates	20
Presence of children in home	
Children	33
None	67

[a]N = 153.

Approximately one-third of the participants had a high school or general equivalency diploma with no additional formal education. Approximately two-thirds of the participants had attended school beyond the high school level but had not earned a college degree. This represents a higher level of education than is found in the general population of East Tennessee.

There were few extremes in income, with approximately 90% of the participants having incomes between $5,000 and $15,000. Seventy-five percent of the participants classified the amount of physical activity expended for their employment to be very light; thus, there also was relatively little variation in values for this variable.

Living situation was distributed approximately equally: one-third of the participants lived alone, one-third lived with their parents, and one-third lived with relatives other than parents or with a roommate. One-third of the participants lived in a household with children. Relationship of children to participants was not assessed.

Average age of the participants was 25.6 $\pm$ 4.5 years, with a range from 18 to 35 years. Average height was 164.9 $\pm$ 6.7 centimeters (64.9 $\pm$ 2.6 inches), with a range of 149.9 to 182.9 centimeters (59 to 72 inches). Average weight was 63.2 $\pm$ 14.4 kilograms (139.1 $\pm$ 31.6 pounds), with a range of 40.9 to 110.0 kilograms (90 to 242 pounds). Thus, although there was a wide range of ages, heights, and weights, most

participants were not at the extremes of the range. Nearly all of the participants had weighed themselves within the last two months, thus reported weight was based on recent information.

Attitude, Health Habit, and Knowledge Characteristics

Fourteen meaningful attitude and health habit factors with two or more primary loadings greater than .40 and an eigenvalue of greater than one were identified and are described in Table 3. Because of the nature of factor analysis, the mean factor score on each factor is approximately zero. However, an individual may have a high or low score on each factor. For example, a high score on Factor 1, Super Person, indicates that the participant perceives herself as aggressive, a leader, self-confident, and talkative. Likewise, a high score on Factor 2, Body Size, indicates that the participant perceives herself as large, is dissatisfied with her present weight, is trying to lose weight, and considers herself unattractive.

Responses to individual questions comprising factors, expressed as percentage of correct responses, percentage of greater than average, or percentage of positive responses are found in Table 4. Participants rated themselves about average on the questions that constitute Factor 1, Super Person; Factor 2, Body Size; Factor 6, Seat Belts; Factor 7, Your Own Thing; Factor 8, Don't Use Salt; Factor 10, Stress

Table 3. Factors for Young Women[a]: Primary Loadings > .40.

Factor	% of Total Variance[b]	Q#[c]	Key Words	Factor Loading
1 Super Person	9.19	43	Aggressive	.792
		41	Leader	.713
		37	Self-confident	.688
		46	Talkative	.487
2 Body Size	7.77	60	Perceived size	.846
		61	Dissatisfaction with size	.805
		62	Trying to lose	.677
		40	Attractive	-.469
3 Nice Person	7.39	45	Cooperative	.707
		42	Friendly	.648
		44	Honest	.601
		39	Mature	.582
4 Worry About Nutrition	7.25	6	If drink milk	.738
		4	If maintain weight	.683
		5	If doctor doesn't say anything	.662
		10	Because vitamins added	.568
5 Nutrition is Important	6.73	7	Shouldn't be careless	.567
		8	Concerned even if take vitamins	.566
		1	Concerned about nutrition	.525
		9	Affect future health	.482
6 Seat Belts	6.69	69	Short distance	.970
		70	Long distance	.867
7 Your Own Thing	4.99	50	Do what you feel like	.610
		54	Went to mountains	.586
		58	Feeling creative	.510
8 Don't Use Salt	4.96	79	Don't salt food at table	.831
		78	Don't add salt to vegetables	.695

Table 3. (Continued)

Factors	% of Total Variance[b]	Q#[c]	Key Words	Factor Loading
9 Caring About Others	4.70	67	Have close friends	.770
		57	Boyfriend's headache	.550
10 Stress Management	4.33	65	Enjoy job	.637
		66	Prepare for stress	.615
11 Relax	4.32	75	Time for self	.661
		76	Relax	.469
12 Traditional	4.25	49	Find self by helping others	.749
		48	Find self by hard work	.563
13 Careful	4.12	71	Obey traffic rules	.679
		72	Care when using poisons	.420
14 Time Management	3.58	73	Have enough time	.478
		77	Get enough sleep	.415

[a] N = 153.

[b] Total variance accounted for by all factors: 80.27%.

[c] See Appendix B.

Table 4. Positive Responses by Young Women to Questions with Primary Factor Loadings > .40.

Factors	Q#[a]	Key Words	% Positive Responses or > Average Description	Average Response for Factor
1 Super Person	43	Aggressive	43.1	44.8
	41	Leader	36.6	
	37	Self-confident	43.8	
	46	Talkative	55.6	
2 Body Size	60	Perceived size	32.7	49.3
	61	Dissatisfaction with size	48.4	
	62	Trying to lose	57.9[b]	
	40	Attractive	58.2	
3 Nice Person	45	Cooperative	80.4	78.6
	42	Friendly	79.1	
	44	Honest	81.7	
	39	Mature	73.2	
4 Worry About Nutrition	6	If drink milk	98.7	93.5
	4	If maintain weight	91.5	
	5	If doctor doesn't say anything	88.2	
	10	Because vitamins added	95.4	
5 Nutrition is Important	7	Shouldn't be careless	96.7	91.2
	8	Concerned even if take vitamins	93.5	
	1	Concerned about nutrition	80.4	
	9	Affect future health	94.1	
6 Seat Belts	69	Short distance	32.7	38.9
	70	Long distance	45.1	
7 Your Own Thing	50	Do what you feel like	20.9	35.3
	54	Went to mountains	54.9	
	58	Feeling creative	30.1	
8 Don't Use Salt	79	Don't salt food at table	34.6	34.0
	78	Don't add salt to vegetables	33.3	

Table 4. (Continued)

Factors	Q#[a]	Key Words	% Positive Responses or > Average Description	Average Response for Factor
9 Caring About Others	67	Have close friends	78.4	83.7
	57	Boyfriend's headache	88.9	
10 Stress Management	65	Enjoy job	81.0	60.5
	66	Prepare for stress	39.9	
11 Relax	75	Time for self	41.1	39.9
	76	Relax	38.6	
12 Traditional	49	Find self by helping others	66.0	67.0
	48	Find self by hard work	68.0	
13 Careful	71	Obey traffic rules	75.2	80.8
	72	Care when using poisons	86.3	
14 Time Management	73	Have enough time	52.3	53.3
	77	Get enough sleep	54.3	

[a]See Appendix B.

[b]Answer reverse coded to correspond with the negative nature of the other questions that loaded heavily on this factor.

Management; Factor 11, Relax; Factor 12, Traditional; and Factor 14, Time Management. Participants rated themselves greater than the average person on the questions that constitute Factor 3, Nice Person; Factor 4, Worry About Nutrition; Factor 5, Nutrition Is Important; Factor 9, Caring About Others; and Factor 13, Careful.

Because some items were not included in any factor, the percentage of correct responses, percentage of greater than average, or percentage of positive responses are found in Appendix C, grouped by original subject matter classifications.

The correlation of factors with original scales is presented in Appendix F. Seven of the factors are comprised of items from more than one of the original scales. Six of the eight original scales are represented in more than one factor.

The mean score on the 25-point knowledge test was 14.8 $\pm$ 3.6. This indicates that, on the average, the participants correctly answered approximately 60% of the questions and had a relatively low level of nutrition knowledge.

Food Selection and Nutrient Intake

Mean intakes of 24 nutrients plus energy and cholesterol are presented in Table 5. Percentages of the RDA, dietary components per 1,000 calories, and percentages

Table 5. Mean Daily Nutrient and Energy Intake, Percentage of Recommended Dietary Allowances, Mean Daily Nutrient Intake per 1,000 Calories, and Percentage of Standard for Young Women[a].

Dietary Component	Mean Intake ± SD	% of RDA[b] ± SD	Mean Intake per 1,000 Calories ± SD	% of Standard[c] ± SD
Energy (Cal)	1472 ± 496	72.6 ± 24.6		
Protein (gm)	55.35 ± 22.76	125.8 ± 51.7	37.77 ± 8.32	171.7 ± 37.8
Fat (gm)	63.84 ± 23.38		43.47 ± 6.42	111.5 ± 16.5
*[d]Carbohydrate (gm)	165.87 ± 63.39		112.47 ± 18.66	60.0 ± 10.0
*Dietary Fiber (gm)	1.44 ± 2.07		1.01 ± 1.51	
Calcium (mg)	487 ± 244	60.9 ± 30.5	327 ± 120	81.7 ± 29.9
*Iron (mg)	9.71 ± 3.75	54.0 ± 20.8	6.67 ± 1.60	74.1 ± 17.8
Magnesium (mg)	94 ± 61	31.2 ± 20.3	63 ± 36	42.1 ± 24.0
Phosphorus (mg)	857 ± 331	107.1 ± 41.4	581 ± 112	145.1 ± 28.0
Potassium (mg)	1703 ± 649		1171 ± 320	
*Sodium (mg)	2046 ± 857		1401 ± 402	
*Zinc (mg)	3.39 ± 1.95	22.6 ± 13.0	2.28 ± 1.00	28.5 ± 12.5
*Copper (mg)	0.394 ± 0.270		0.268 ± 0.172	
Manganese (mg)	0.717 ± 0.685		0.481 ± 0.449	
*Vitamin A (IU)	3372 ± 3981	84.3 ± 99.5	2281 ± 2609	114.1 ± 130.5
Alpha tocopherol (mg)	0.61 ± 0.86	7.6 ± 10.8	0.42 ± 0.50	10.5 ± 12.5
Ascorbic Acid (mg)	57.4 ± 45.6	95.6 ± 76.0	38.7 ± 28.2	129.2 ± 93.9
Thiamin (mg)	0.970 ± 0.393	94.4 ± 38.7	0.663 ± 0.177	132.0 ± 36.0
Riboflavin (mg)	1.098 ± 0.483	89.5 ± 39.6	0.746 ± 0.221	125.0 ± 36.7
*Niacin (mg)	14.591 ± 6.646	109.9 ± 50.4	9.958 ± 2.932	142.3 ± 41.9
*Pantothenic Acid (mg)	2.055 ± 1.106		1.414 ± 0.697	
*Vitamin B_6 (mg)	0.746 ± 0.428	37.3 ± 21.4	0.512 ± 0.281	51.0 ± 28.0
*Folacin (mcg)	106.3 ± 87.9	26.6 ± 22.0	72.9 ± 59.3	36.4 ± 29.6
*Vitamin B_{12} (mcg)	1.57 ± 1.69	52.2 ± 56.3	1.09 ± 1.26	72.7 ± 84.0
Cholesterol (mg)	248 ± 143		173 ± 88	

[a]N = 153.

[b]1980 version.

[c]Hansen & Wyse (145).

[d]* = intake of these nutrients may reflect incomplete information in data base (143).

of the 1,000 calorie standard (145) also were calculated and are presented in Table 5.

Mean energy consumption was low at 72.6 ± 25.6% of the RDA, and protein intake was very adequate, with 125.8 ± 51.7% of the RDA for the appropriate age/gender category. Calcium and iron intakes also were low with mean intakes below 66% of the RDA. Both also were less than 100% of the 1,000 calorie standard, indicating low nutrient density for calcium and iron in the foods selected by the participants. Phosphorus and niacin means exceeded the RDA; vitamin A, ascorbic acid, thiamin, and riboflavin all had means greater than 80% of the RDA. Means of nutrients and the comparison of means to the RDA or 1,000 calorie standards for dietary components other than the ten listed above may be misleading. The USDA data base (143) used for this analysis was not complete enough for the other nutrients to conclude that the participants were low in the consumption of these nutrients. Therefore, the low mean values may reflect a lack of data in the data base rather than a lack of the nutrient in the participant's diet. Similarly, cholesterol values may reflect incomplete data.

The mean RDA score on the 20-point scale was 15.4 ± 4.3, indicating relatively poor eating habits. The mean score indicates that intakes of several nutrients were less than two-thirds of the RDA. Mean daily servings in the 20 categories and the four food groups are recorded in Table 6.

Table 6. Mean Daily Servings of 20 Food Groupings and the Four Food Groups for Young Women.[a]

	Servings per Day Mean ± SD
Food Groupings	
Milk Products	0.56 ± 0.61
Meat Products	1.99 ± 0.99
Legumes	0.19 ± 0.30
Fruits	0.26 ± 0.47
Raw Vegetables	0.41 ± 0.52
Cooked Starchy Vegetables	0.60 ± 0.47
Cooked Other Vegetables	0.40 ± 0.47
Bread	1.87 ± 0.91
Cereal	0.24 ± 0.36
Pasta	0.14 ± 0.23
Desserts	0.55 ± 0.54
Salty Snacks	0.23 ± 0.31
Fluid Milk	0.41 ± 0.50
Fruit and Vegetable Beverages	0.30 ± 0.48
Tea and Coffee	0.81 ± 0.96
Carbonated Beverages	1.27 ± 1.08
Alcoholic Beverages	0.27 ± 0.65
Other Beverages	0.02 ± 0.07
Fat	1.08 ± 0.83
Sugars	0.35 ± 0.56
Four Food Groups	
Milk and Cheese	0.97 ± 0.80
Meat, Poultry, Fish and Beans	2.19 ± 1.04
Vegetable and Fruit	1.97 ± 1.34
Bread and Cereal	2.25 ± 1.01
Four Food Group Total	7.39 ± 2.52

[a] N = 153.

Servings of the meat, poultry, fish, and beans group were adequate, with 2.2 ± 1.0 servings per day. Mean intake of the milk and cheese group was only 1.0 ± 0.8 servings per day. This is in agreement with the calculated low calcium intake. Servings of the vegetable and fruit group and the bread and cereal group also were low, with an average of two servings per day of each, rather than the recommended four servings. Fruit intake was especially low, with a mean intake of approximately one-fourth of a serving of fruit and one-third of a serving of fruit or vegetable juices per day.

As recorded in Table 7, the average number of meals consumed during the three-day period was 7.1 ± 1.7. Nine meals would be the traditional number consumed over a three-day period. Mean daily energy intake was 257 ± 243 calories from snacks and 1216 ± 443 calories from meals. Thus, approximately 17% of the energy was consumed in snacks.

Participant Homogeneity

The 14 meaningful factor scores and the nutrition knowledge score were analyzed by race, living conditions, and presence of children. Although there were significant differences in some categories, there were no overall consistent variations that would indicate that the data should be subdivided into categories for further analysis. As recorded in Table 8, analysis of variance with the factors and the knowledge test indicated that black

Table 7. Correlation[a] of RDA Score and Food Consumption Variables with Factor and Nutrition Knowledge Scores for Young Women.[b]

Variables	Intake Mean ± SD	Factor[c] 1	2	3	4	5	6	7	8	9	10	11	12	13	14	Nutrition Knowledge
RDA Score[d]	15.41 ± 4.34	-.18*	-.13	-.06	.04	.11	.14	-.08	.12	.04	-.06	.04	.08	.18*	.09	.12
# of Meals in 3 Days	7.06 ± 1.71	-.23*	.05	.02	.04	.20*	.12	-.10	-.05	.03	.04	-.04	.21*	.05	.13	.12
Energy from Snacks (Cal)	257 ± 243	.05	-.19*	-.13	.01	-.15	.06	.11	-.01	.02	-.11	.03	-.10	-.00	.05	-.11
Energy from Meals (Cal)	1216 ± 443	-.14	-.05	-.03	.01	.03	.06	-.17*	.05	-.04	-.03	.11	.02	.22*	.13	-.05
% Energy from Snacks	16.9 ± 14.7	.10	-.15	-.11	.00	-.14	.02	.13	-.00	.04	-.12	.03	-.11	-.02	.04	.12
Four Food Group Score[f]	7.39 ± 2.52	-.17*	-.03	-.10	-.00	.20*	.08	-.06	.05	.04	-.02	.06	.08	.13	.13	.11

[a] Pearson's r.

[b] N = 153.

[c] Factor names
1-Super Person
2-Body Size
3-Nice Person
4-Worry About Nutrition
5-Nutrition is Important
6-Seat Belts
7-Your Own Thing
8-Don't Use Salt
9-Caring About Others
10-Stress Management
11-Relax
12-Traditional
13-Careful
14-Time Management.

[d] ≤ 33% RDA = 0
> 33% but ≤ 66% RDA = 1
> 66% RDA = 2
for: energy, protein, calcium, iron, phosphorus, vitamin A, ascorbic acid, thiamin, riboflavin, niacin.

[e] * = $P \leq 0.05$.

[f] Mean daily intake of servings from four food groups.

Table 8. Comparison of Factor and Nutrition Knowledge Scores by Categories of Race, Living Conditions, and Presence of Children for Young Women.[a]

Factor	Race		Living Conditions				Presence of Children	
	Black	White	Alone	Parents	Relative	Roommates	Children	None
	LS Mean ± SEM[c]							
1	0.17 ± 0.17	0.10 ± 0.10	0.75 ± 0.21^{x}	0.39 ± 0.19^{y}	1.00 ± 0.30^{x}	0.48 ± 0.23^{xy}	0.86 ± 0.21^{x}	0.44 ± 0.19^{y}
2	-0.04 ± 0.18	-0.02 ± 0.11	-0.14 ± 0.23	-0.22 ± 0.21	-0.20 ± 0.33	-0.54 ± 0.25	-0.35 ± 0.23	-0.19 ± 0.21
3	0.08 ± 0.18	0.03 ± 0.11	-0.26 ± 0.22	-0.22 ± 0.20	-0.35 ± 0.32	0.03 ± 0.24	-0.12 ± 0.22	-0.28 ± 0.20
4	0.33 ± 0.18^{x}	-0.06 ± 0.11^{y}	0.21 ± 0.21	0.05 ± 0.20	0.28 ± 0.32	0.15 ± 0.24	0.12 ± 0.22	0.22 ± 0.20
5	-0.26 ± 0.17	0.05 ± 0.10	0.16 ± 0.21	-0.00 ± 0.19	-0.18 ± 0.30	-0.07 ± 0.23	0.07 ± 0.21	-0.12 ± 0.19
6	-0.36 ± 0.20	0.05 ± 0.12	-0.24 ± 0.24	-0.30 ± 0.23	-0.56 ± 0.36	-0.38 ± 0.27	-0.38 ± 0.25	-0.37 ± 0.22
7	-0.04 ± 0.16	-0.03 ± 0.10	0.05 ± 0.20	-0.09 ± 0.19	0.19 ± 0.30	-0.04 ± 0.22	-0.18 ± 0.21^{x}	0.24 ± 0.19^{y}
8	-0.14 ± 0.18	-0.01 ± 0.11	0.17 ± 0.22	0.16 ± 0.21	-0.01 ± 0.32	0.31 ± 0.24	0.16 ± 0.22	0.15 ± 0.20
9	-0.17 ± 0.16	0.01 ± 0.10	-0.71 ± 0.20	-0.59 ± 0.19	-1.02 ± 0.29	-0.84 ± 0.22	-0.78 ± 0.20	-0.80 ± 0.18
10	-0.01 ± 0.17	-0.04 ± 0.10	-0.01 ± 0.21	-0.01 ± 0.19	-0.35 ± 0.30	0.11 ± 0.23	-0.02 ± 0.21	-0.11 ± 0.19
11	0.02 ± 0.17	-0.05 ± 0.11	0.19 ± 0.21	0.02 ± 0.19	0.04 ± 0.30	-0.02 ± 0.23	-0.01 ± 0.21	0.12 ± 0.19
12	-0.14 ± 0.16	0.06 ± 0.10	-0.12 ± 0.20	0.01 ± 0.19	-0.13 ± 0.30	-0.14 ± 0.22	0.05 ± 0.21	-0.24 ± 0.19
13	0.41 ± 0.16^{x}	0.03 ± 0.09^{y}	0.27 ± 0.19	0.03 ± 0.18	0.42 ± 0.28	-0.06 ± 0.21	0.36 ± 0.20^{x}	-0.03 ± 0.18^{y}
14	-0.47 ± 0.16^{x}	0.07 ± 0.10^{y}	-0.04 ± 0.20	-0.05 ± 0.19	0.22 ± 0.29	-0.28 ± 0.22	-0.16 ± 0.20	-0.13 ± 0.18
Nutrition Knowledge	12.27 ± 0.66^{x}	15.42 ± 0.40^{y}	15.00 ± 0.82^{x}	13.46 ± 0.77^{y}	13.83 ± 1.21^{xy}	14.27 ± 0.91^{xy}	14.10 ± 0.84	14.18 ± 0.75

[a] N = 153.

[b] Factor names
1-Super Person
2-Body Size
3-Nice Person
4-Worry About Nutrition
5-Nutrition is Important
6-Seat Belts
7-Your Own Thing
8-Don't Use Salt
9-Caring About Others
10-Stress Management
11-Relax
12-Traditional
13-Careful
14-Time Management.

[c] Values with different superscript letters within a row within a category are different $p \leq 0.05$.

participants worried about nutrition more than did the white participants. The black participants seemed to be more careful, were less effective in time management, and scored lower on the nutrition knowledge test than did white participants. Living with parents apparently is not conducive to self-sufficiency, as participants who lived with their parents scored lower on Factor 1, Super Person, than those who lived alone or with relatives. Participants who lived with their parents scored lower on the nutrition knowledge test than those who lived alone. Those with children in the household scored higher on Factor 1, Super Person, and Factor 13, Careful, and lower on Factor 7, Doing Your Own Thing, than those who did not live with children.

Daily intake of eight selected dietary components, RDA score, and food consumption variables also were analyzed by race, living conditions, and presence of children. As recorded in Table 9, living conditions had a limited relationship to dietary consumption. Participants who lived with relatives other than parents had poorer nutrient intakes than participants in other living conditions, particularly those with roommates, and presence of children in the home was associated with a higher protein intake. As there were no overall patterns of variation, subdivision into categories for further analysis was not warranted.

Table 9. Comparison of Dietary Components, RDA Score, and Food Consumption Variables by Categories of Race, Living Conditions, and Presence of Children for Young Women.[a]

	Race				Living Conditions								Presence of Children			
	Black		White		Alone		Parents		Relative		Roommates		Children		None	
	LS Mean ± SEM[b]															
Dietary Component																
Energy (Cal)	1451	± 96	1471	± 58	1426	± 119^{xy}	1401	± 111^{xy}	1160	± 174^{x}	1523	± 131^{y}	1455	± 121^{x}	1300	± 109
Protein (gm)	62.27	± 4.28	53.75	± 2.58	54.48	± 5.32^{xy}	54.48	± 4.94^{xy}	42.34	± 7.79^{x}	58.55	± 5.87^{y}	57.73	± 5.40^{x}	47.45	± 4.88^{y}
Fat (gm)	65.28	± 4.48	63.20	± 2.71	59.68	± 5.58^{xy}	60.34	± 5.18^{xy}	47.45	± 8.16^{x}	64.70	± 6.15^{y}	61.96	± 5.66	54.12	± 5.11
Calcium (mg)	419	± 47	407	± 29	480	± 59	456	± 55	330	± 86	476	± 65	455	± 60	416	± 54
Iron (mg)	10.01	± 0.72	9.75	± 0.44	8.86	± 0.90	8.91	± 0.83	7.57	± 1.31	10.14	± 0.99	9.48	± 0.91	8.27	± 0.82
Vitamin A (IU)	3169	± 783	3791	± 473	2208	± 974	2725	± 905	3570	± 1425	2861	± 1075	2961	± 988	2720	± 892
Ascorbic Acid (mg)	61.7	± 8.9	52.2	± 5.4	46.6	± 11.0^{xy}	52.6	± 10.3^{xy}	29.7	± 16.2^{x}	62.6	± 12.2^{y}	45.7	± 11.2	50.0	± 10.1
Thiamin (mg)	0.971	± 0.075	0.950	± 0.050	0.930	± 0.093^{xy}	0.945	± 0.087^{x}	0.673	± 0.137^{y}	0.992	± 0.103^{x}	0.946	± 0.095	0.813	± 0.086
RDA Score	14.74	± 0.83	15.62	± 0.50	14.03	± 1.03^{xy}	13.99	± 0.96^{xy}	12.06	± 1.51^{x}	15.44	± 1.14^{y}	14.52	± 1.05	13.25	± 0.94
Number of Meals in 3 days	6.88	± 0.33	6.95	± 0.20	6.58	± 0.41^{xy}	6.95	± 0.38^{x}	5.73	± 0.60^{y}	6.73	± 0.45^{xy}	6.61	± 0.42	6.37	± 0.38
Energy from Snacks (Cal)	224	± 47	270	± 28	269	± 58	178	± 54	238	± 85	282	± 64	223	± 57	258	± 53
Energy from Meals (Cal)	1228	± 84	1200	± 51	1159	± 105^{xy}	1226	± 98^{y}	922	± 154^{x}	1242	± 116^{y}	1232	± 107^{x}	1042	± 96^{y}
% Energy from Snacks	15.0	± 0.3	18.1	± 0.2	19.1	± 3.5^{x}	13.0	± 3.2^{y}	21.2	± 5.1^{xy}	18.3	± 3.8^{xy}	16.0	± 3.5	19.8	± 3.2
Four Food Groups Score	7.45	± 0.48	7.14	± 0.29	7.43	± 0.60^{xz}	7.04	± 0.56^{xz}	5.50	± 0.88^{y}	7.72	± 0.66^{z}	7.15	± 0.61	6.69	± 0.55

[a] N = 153.

[b] Values with different superscript letters within a row within a category are different $p \leq 0.05$.

Relationships of Factors and Nutrition Knowledge to Food Selection and Nutrient Intake

Relationships of factors and nutrition knowledge to food selection and nutrient intake are recorded in Tables 7 (page 43), 10, and 11. A high score on Factor 1, Super Person, was negatively correlated with five of the dietary components and four of the dietary components per 1,000 calories. Super Person factor score was negatively correlated with RDA score, servings from the four food groups, and number of meals recorded on the three-day food records. This indicates that the self-confident, aggressive participants apparently paid less attention to nutrient intake, nutrient density, and food selection than those who scored lower on these characteristics.

Carbohydrate intake was negatively correlated and nutrient density of protein was positively correlated with scores on Factor 2, Body Size. Both of these relationships often are associated with weight reduction efforts. Scores on Body Size also were negatively correlated with energy from snacks. Again, this is consistent with weight reduction efforts.

Scores on Factor 3, Nice Person, were positively associated with nutrient density of fat and cholesterol and negatively associated with carbohydrate intake. However, scores on Factor 3 were not correlated with food consumption patterns. Although those who scored high on this factor had

Table 10. Correlation[a] of Mean Dietary Components with Factor and Nutrition Knowledge Scores for Young Women.[b]

Dietary Component	Factor[c]														Nutrition Knowledge
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
Energy	-.11	-.15	-.10	.01	-.05	.08	-.10	.03	-.02	-.08	.11	-.03	.20*	.14	.01
Protein	-.04	-.05	.01	-.03	-.01	-.05	-.08	.03	.02	.07	.12	.01	.22*	.12	-.12
Fat	-.07	-.11*	-.00*	.01	-.04	.04	.10	.00	-.04	-.07	.12	-.06	.18	.08*	-.03
Carbohydrate	-.15*	-.16	-.17	.03	-.01	.12	-.15	.09	.02	-.13	.05	.00	.14	.16	.12
Calcium	-.21	-.15	-.14	.05	.02	.16	-.05*	.03	.08	-.09	.13	.12	.10*	.14	.10
Iron	-.12*	-.09	-.06	-.04	.09	.04	-.19	.01	.08	-.06	.05	-.00	.17*	.12*	.02
Phosphorus	-.16*	-.13	-.08	.01	.00*	.09	-.05	.06	.04	-.00	.15	.06	.18	.17	.05
Potassium	-.20	-.12	-.12	.10	.17	.13	-.06	.08	-.02	-.07	.02*	.07	.12*	.11	.13
Sodium	-.05	-.07	-.10	.02	-.08	.10	-.08	.04	-.00	.07	.17	.04	.24	.09	-.04
Vitamin A	-.16*	-.00	-.12	-.05	.04*	.12*	-.02	-.05	.04	.08	.06	.04	-.06	.03	.03*
Ascorbic Acid	-.26	-.08	-.14	.01	.17	.16	-.07*	.16	-.01	-.04	-.04	-.03	-.03*	.07	.25
Thiamin	-.13*	-.05	-.06	-.01	.01	.14	-.20	.07	.06	-.10	.02	.01	.18	.09	.05
Riboflavin	-.21	-.13	-.05	.04	.02	.12	-.11	.04	.10	-.09	.09	.04	.15	.14	.07
Niacin	-.11	-.05	.02	.00	-.04	-.01	-.12	.03	.06	.06	.08	-.04	.19	.09	-.09
Cholesterol	.01	.00	.11	-.02	.01	-.03	-.04	-.04	-.01	.12	.13	.00	.17	.11	-.05

[a] Pearson's r.

[b] N = 153.

[c] Factor names

1-Super Person
2-Body Size
3-Nice Person
4-Worry About Nutrition
5-Nutrition is Important
6-Seat Belts
7-Your Own Thing
8-Don't Use Salt
9-Caring About Others
10-Stress Management
11-Relax
12-Traditional
13-Careful
14-Time Management.

[d] * = $p \leq 0.05$.

Table 11. Correlation[a] of Dietary Components/1,000 Calories with Factor and Nutrition Knowledge Scores for Young Women.[b]

Dietary Component	Factor[c] 1	2	3	4	5	6	7	8	9	10	11	12	13	14	Nutrition Knowledge
Protein	.12	.16*	.12*	-.09	.06	-.16*	.03	.03	.03	.21*	.07	.06	.06	-.01	-.17*
Fat	.07	.09	.17*	.01	-.01	-.07	.01	-.11	-.04	.01	.02	-.15	-.05	-.16	-.12*
Carbohydrate	-.13*	-.14	-.18	.03	.06	.10	-.15	.15	.09	-.11	-.09	.08*	-.03	.12	.18
Calcium	-.23	-.07	-.06	.05	.11*	.13	.02	.00	.15	-.05	.04	.21	-.03	-.01	.12
Iron	-.06*	-.09	-.01	-.05	.17	-.03	-.15	.00	.14	.01	-.05	.02*	.01	.02	.02
Phosphorus	-.16	.02	.01	-.01	.11*	.06	.06	.06	.11	.10	.10	.18	.00	.05	.09*
Potassium	-.16	.00	-.06	.13	.30	.11	.00	.06	-.07	.04*	-.11	.10	-.12	.01	.17
Sodium	.12	.05	-.04	-.03	-.04	.03	-.03	.01	-.05	.17	.11	.02	.08	-.07	-.07
Vitamin A	-.11*	.03	-.08	-.04	.08*	.10*	-.01	-.05	.01	-.05	-.00	.06	-.15	-.00	.04*
Ascorbic Acid	-.25	-.00	-.13	.02	.22	.17	-.05	.15	-.05	.01	-.11	-.03	-.14	.04	.26
Thiamin	-.07*	.11	-.01	-.05	.10	.09	-.16	.11	.08	-.06	-.12	.06	.01	-.06	.07
Riboflavin	-.18	-.03	.04	.04	.12	.08	-.08	.04	.15	-.04	-.01	.08	-.01	.02	.10
Niacin	-.00	.12	.11*	-.04	.02	-.09	-.04	.05	.05	.14*	.02	-.01	.06	-.00	-.10
Cholesterol	.12	.13	.17	-.00	.06	-.03	.05	-.05	.03	.17	.07	-.02	-.00	.03	-.03

[a] Pearson's r.

[b] N = 153.

[c] Factor names
1-Super Person
2-Body Size
3-Nice Person
4-Worry About Nutrition
5-Nutrition is Important
6-Seat Belts
7-Your Own Thing
8-Don't Use Salt
9-Caring About Others
10-Stress Management
11-Relax
12-Traditional
13-Careful
14-Time Management.

[d] * = $p \leq 0.05$.

different nutrient intakes than those who scored low, the times of food consumption and the distribution of calories did not vary.

Factor 4, Worry About Nutrition, was not related to either dietary components or food consumption patterns. However, Factor 5, Nutrition Is Important, was positively correlated with nutrient density of iron, potassium and ascorbic acid intake, consumption of foods from the four food groups, and number of meals. All of these are associated with the nutrient consumption and eating patterns usually associated with well-accepted nutrition practices.

Factor 6, Seat Belts, was positively correlated with ascorbic acid intake. This suggests a carry-over of self-care from other areas of life into the area of nutrition.

Factor 7, Doing Your Own Thing, was negatively correlated with both iron and thiamin intake and also negatively correlated with energy from meals. Thus, the women who scored high on Doing Your Own Thing generally did not consume a great deal of energy at meals, even though they consumed the average number of meals. The low iron consumption with low energy consumption at meals is consistent with other findings in this study.

Those who reported that they Don't Use Salt, Factor 8, had food choices that did not differ in sodium content from those who were unconcerned with intake of salt. This may, however, be more indicative of incomplete sodium data in the

USDA (1985) data base than of actual sodium content in the diet.

Factor 9, Caring About Others, was found to be unrelated to dietary components and patterns of food selection. This can be explained by the fact that the dietary components and patterns of food selection were for the participant, and not for the others about whom they cared.

Scores on Factor 10, Stress Management, were positively correlated with nutrient density of protein, sodium, and cholesterol. As levels of protein were high in this study, lower protein levels would indicate better diet management. Similarly, low intakes of sodium and cholesterol are desirable patterns. Therefore, these positive correlations indicate that the diet was not managed as well as the stress. Scores on Factor 11, Relax, were positively correlated with sodium intake. Again, not all aspects of the diet may be handled as well as are the means for combating stress.

Scores on Factor 14, Time Management, were positively related to carbohydrate and phosphorus intakes. There were not, however, positive correlations of Factor 14 with energy from snacks, which might be high carbohydrate, or positive correlations with protein or calcium, which might be found in foods with phosphorus. Therefore, until further evidence indicates otherwise, the correlations of Time Management

with dietary components and food consumption patterns will be interpreted as spurious results.

Scores on Factor 12, Traditional, were associated with nutrient density for calcium and iron and number of meals in three days. Thus, individuals with a Traditional orientation apparently are heeding current dietary recommendations regarding calcium and iron, nutrients which often are problems in women's diets. Scores on Factor 13, Careful, were associated with intake of 7 of the 15 dietary components analyzed, RDA score, and energy from meals. For intakes other than fat and cholesterol, this indicates that the participants tended to be careful with nutrient consumption if they were careful in other areas of their lives.

Nutrition knowledge scores were positively correlated with ascorbic acid intake and nutrient density for potassium and carbohydrate and negatively correlated with nutrient density for protein. As with total nutrient intake, a lower nutrient density for protein is a positive feature, as levels of protein tended to be high in this study. Thus, evidence of utilization of the nutrition knowledge in choice of foods was seen, particularly in the areas of high ascorbic acid and low nutrient density for protein.

Interrelationships of RDA Score and Food Consumption Variables

As indicated in Table 12, there were many correlations among the nutrient and food consumption variables. RDA score was correlated with energy from snacks and energy from meals, as well as number of meals and the four food groups. Four food group total score was correlated with energy from both snacks and meals as well as number of meals. Energy from snacks was unrelated to energy from meals; however, energy from snacks was negatively related to number of meals. Appropriately, number of meals was correlated with energy from meals.

Interrelationships of Body Size Variables

As indicated in Table 13, there were many correlations among the body size variables: body mass index (146), perceived physical attractiveness, perceived large size, dissatisfaction with weight, and trying to lose weight. Thus, these participants had a relatively accurate perception of their own size, and those that were of larger size were dissatisfied with their size and were trying to reduce in size.

Prediction of Nutrient Intake and Food Consumption

Based on factor and nutrition knowledge scores, and in some cases caloric consumption, equations for prediction of

Table 12. Correlation[a] of RDA Score and Food Consumption Variables for Young Women.[b]

	Energy from Snacks	Energy from Meals	Number of Meals	Four Food Groups
RDA Score	.26*[c]	.73*	.58*	.82*
Energy from Snacks		.04	-.25*	.21*
Energy from Meals			.58*	.73*
Number of Meals				.59*

[a] Pearson's r.

[b] N = 153.

[c] * = $p \leq 0.05$.

Table 13. Correlation[a] of Weight/Height^2 with Body Size Variables for Young Women.[b]

	Key Words	Mean ± SD	Correlations			
			Q40	Q60	Q61	Q62
Wt/Ht^2 (kg/m^2)		23.23 ± 5.08	-.32*[c]	.83*	.66*	.42*
Q40[d]	Physically Attractive	4.30 ± 1.33		-.42*	-.46*	-.20*
Q60[e]	Perceived Body Size	2.80 ± 1.22			.73*	.51*
Q61[f]	Dissatisfied With Wt	3.09 ± 1.40				.50*
Q62[g]	Trying to Lose	2.53 ± 0.59				

[a] Pearson's r.

[b] N = 153.

[c] * = $p \leq 0.05$.

[d] Range 0-7: 7 = attractive.

[e] Range 1-5: 5 = large.

[f] Range 1-5: 5 = dissatisfied.

[g] Range 1-3: 3 = trying to lose.

consumption of selected nutrients were created. Only a few equations were significant. These are included in Table 14. In all cases where caloric consumption was a significant component of the equation, the variability explained by the regression equation (R^2) was greater if caloric consumption was part of the equation; thus, at least in some instances, total caloric intake had strong influences on total nutrient consumption. Standard errors for the components of the regression equations are in Appendix G.

Protein intake is predicted best by including calories in the equation, with Factor 10, Stress Management, predictive of a positive protein intake, and the nutrition knowledge score predictive of a decrease in protein intake. The association of a lower protein intake with higher knowledge is consistent with the fact that, as there is generally an overabundance of protein consumed in our country, there is general encouragement for a decreased protein intake.

Calcium intake was lower when the score on Factor 1, Super Person, was higher. Concern with body size is negatively related to calcium intake if calories are not part of the equation, whereas Factor 12, Traditional, is positively related to calcium intake when calories are considered. Thus, the woman concerned with weight reduction or who considers herself to be a super person, has a reduced intake of calcium-rich foods and the tradition-

Table 14. Regression Equations[a] for Predicting Nutrient Intake and Food Consumption Variables from Significant Factor Scores, Nutrition Knowledge Scores, and Caloric Intake for Young Women[b].

	Equation[c]	R^2
Protein (gm)	= 11.43 + 0.04 Cal + 3.53 F10[de] - 0.75 Knowledge	.68
Calcium (mg)	= 487.22 - 57.69 F1 - 41.02 F2	.07
Calcium (mg)	= -14.67 + 0.34 Cal - 36.73 F1 + 40.11 F12	.53
Iron (mg)	= 9.71 - 0.82 F7 + 0.76 F13	.06
Iron (mg)	= 1.22 + 0.01 Cal + 0.55 F5 - 0.49 F7 + 0.45 F9	.62
Ascorbic Acid (mg)	= 16.45 - 11.50 F1 + 2.79 Knowledge	.11
Ascorbic Acid (mg)	= 26.13 + 0.03 Cal - 0.97 F1 + 7.88 F5 + 2.39 Knowledge	.26
RDA Score	= 15.41 - 0.84 F1 + 0.93 F13	.06
% Energy from Snacks	= 6.72 - 2.52 F2 - 3.06 F5 + 0.69 Knowledge	.07
Energy from Meals (Cal)	= 1215.52 - 89.37 F7 + 116.25 F13	.08
Number of Meals	= 7.07 - 0.43 F1 + 0.36 F5 + 0.39 F12	.13

[a] $Dep = b_o + b_1X_1 + b_2X_2 \text{ --- } b_xX_x$.

[b] N = 153.

[c] Unstandardized beta.

[d] Standard errors in Appendix G.

[e] Factor Names

1-Super Person
2-Body Size
5-Nutrition is Important
7-Your Own Thing
9-Caring About Others
10-Stress Management
12-Traditional
13-Careful.

oriented woman has a higher consumption of calcium-rich foods than does the woman who is not tradition-oriented.

Regardless of caloric consideration, iron consumption is negatively related to Factor 7, doing Your Own Thing. The lack of concern for iron intake by the individuals who scored high on doing Your Own Thing is an example of the free-spirited individual ignoring dietary recommendations. If calories are not considered, iron consumption is positively related to Factor 13, Careful, which is consistent, as a person who is careful also may be careful about iron intake. When calories are considered, the contribution of Factor 13, Careful, is replaced in the equation by Factor 5, Nutrition Is Important, and Factor 9, Caring About Others. This also is consistent with the current trend, as iron is an important nutrient and several current advertisements about iron suggest that iron should be taken if you care about others to whom you are important.

Factor 1, Super Person, is a negative predictor of ascorbic acid intake, and nutrition knowledge is a positive indicator of ascorbic acid intake. When calories are considered in the equation, Factor 5, Nutrition Is Important, also becomes an important predictor of ascorbic acid intake.

Factor 1, Super Person, is a negative predictor, and Factor 13, Careful, is a positive predictor of RDA score. As RDA score is a composite score, this is consistent with

the fact that Super Person was a negative indicator and Careful was a positive indicator for some of the individual nutrients.

Factor 2, Body Size, and Factor 5, Nutrition Is Important, are negative predictors and nutrition knowledge is a positive predictor of percentage of energy from snacks. This is in agreement with what one would expect from these scores because the person who is trying to lose weight or the person who feels that nutrition is important may choose to consume a smaller portion of total energy from snacks. However, individuals with accurate nutrition knowledge recognize that well-chosen snacks can make positive contributions to dietary quality. Also consistent is the fact that Factor 7, Doing Your Own Thing, will negatively predict energy from meals, whereas Factor 13, Careful, is a positive predictor in the equation to calculate energy from meals.

Number of meals is negatively related to Factor 1, Super Person, and positively related to Factor 5, Nutrition Is Important, and Factor 12, Traditional. This is in agreement with the thought that the person who is traditional in orientation and the person who feels that nutrition is important probably would be relatively concerned about meal consumption.

Hypotheses

Hypothesis 1

The hypothesis that attitudes toward self are positively related to food selection and nutrient intake was not supported for all aspects of self. Scores on the Super Person factor (aggressive, a leader, self-confident, and talkative) were negatively correlated with calcium, phosphorus, potassium, ascorbic acid, and riboflavin intake; nutrient density for calcium, phosphorus, ascorbic acid, and riboflavin; RDA score; intake of the four food groups; and number of meals in three days.

Factor 2, Body Size, was found to be negatively related to carbohydrate intake and energy from snacks. Because of the negative nature of the variable, body size may be said to be positively related to food selection and nutrient intake.

Scores on Nice Person were negatively related to carbohydrate intake. As this was the only relationship for this factor, Factor 3, Nice Person, is basically unrelated to food and nutrition parameters.

Factor 7, Your Own Thing, was negatively related to iron and thiamin consumption and energy from meals. Factor 12, Traditional, was found to be related to food and nutrition only in number of meals per day.

In summary, there was a negative relationship between self-perception as a Super Person or one who does Your Own Thing and food selection and nutrient intake. Body size and

Traditional orientation were related to food selection and nutrient intake in several areas.

The inconsistency of the relationship between general self-concept and food selection and nutrient intake is compatible with the findings of Schafer and Keith (9). They found self-esteem had no effect on the diet quality of the elderly, but Schafer (8) found that young women's diets were positively correlated with self-concept.

Participants in this study reported a negative relationship between perceived body size and carbohydrate intake and energy from snacks. This is not in agreement with the findings of previous researchers (29), who found that body size was not related to dietary intake.

Hypothesis 2

The hypothesis that attitudes toward the importance of food and nutrition are positively related to food selection and nutrient intake was true for Factor 5, Nutrition Is Important, with a positive relationship for potassium and ascorbic acid, number of meals in three days, and four food groups. This finding is consistent with previous research in this area (2, 3, 56). These researchers also found that attitudes toward the importance of food and nutrition were positively related to food- and nutrition-related behavior. Although Factor 4, Worry About Nutrition, was found to be unrelated to food selection and nutrient intake, some support for the hypothesis that attitudes toward the

importance of food and nutrition are positively related to food selection and nutrient intake was found.

Hypothesis 3

The hypothesis that nutrition knowledge is related to food selection and nutrient intake was supported. Although the only relationship with nutrient intakes was a positive relationship between ascorbic acid intake and nutrition knowledge, when nutrients per 1,000 calories were considered, relationships were found with nutrition knowledge and the consumption of protein, carbohydrate, potassium, and ascorbic acid. Thus, food and nutrition knowledge was found to be positively related to consumption.

Other researchers have found inconsistent relationships between nutrition knowledge and food- and nutrition-related behavior. Although some researchers have found few relationships between knowledge and practice (3, 67, 68), others have found that relationships existed (61, 63). Therefore, the fact that this research indicated relationships between nutrition knowledge and food- and nutrition-related behavior is consistent with the findings of some previous researchers.

Hypothesis 4

The hypothesis that health habits are positively related to food selection and nutrient intake was supported in some areas. Use of seat belts was related to ascorbic

acid intake and to protein intake on a per 1,000 calorie basis in the direction that would indicate improved nutrition. Being careful was related to the intake of seven dietary components, RDA score, and energy from meals. However, time management was related to increased carbohydrate and phosphorus consumption, and ability to relax was related to increased sodium consumption. Stress management was related to increased protein, sodium, and cholesterol on the per 1,000 calorie basis. Thus, health habits must be divided for analysis. Being careful in other health areas is related to a good dietary pattern. However, successful time and stress management practices are negatively related to certain dietary parameters.

The relationship of care in one area of health to care in food- and nutrition-related behavior is consistent with findings of previous researchers (10). However, there are no other published studies that compare time and stress management with food- and nutrition-related behavior; therefore, a comparison of this finding with the findings of others must wait until others have studied these relationships. The four hypotheses of the study were supported. Therefore, because relationships of self-concept, food and nutrition attitudes, food and nutrition knowledge, and health habits to food selection and nutrient intake were found, the suggested relationships of these variables, as presented in Figure 1 (page 3) are supported.

Prediction Equations

Food selection and nutrient intake can be predicted from attitudes toward self, attitudes toward food and nutrition, nutrition knowledge, and health habits. Four factors concerned with self-concept (Super Person, Body Size, Your Own Thing, and Traditional), one factor concerned with attitudes toward food and nutrition (Nutrition Is Important), three factors concerned with health habits (Caring About Others, Stress Management, and Careful), and nutrition knowledge score were found to be components of regression equations to predict food selection and dietary intake.

Although some of the equations had low percentages of the variability accounted for (R^2) by the regression equation, equations for protein, calcium, and iron provide a means of a potential predictive method (Table 14, page 57). Because calcium and iron were the nutrients consumed in lowest quantities by the women in this study, as well as by women in general, the ability to predict intakes of these nutrients is an important aspect of this study. Prediction of food- and nutrition-related behavior from attitudes, knowledge, and habits is a unique aspect of this research. There are no other studies with which to compare these findings. The predictions of food- and nutrition-related behavior from attitude, knowledge, and habits needs to be researched in greater depth.

CHAPTER V

SUMMARY AND CONCLUSIONS

One hundred fifty-three single employed females between the ages of 18 and 35 were participants in this study. Participants were contacted through their place of employment and represented a variety of occupations. Most had incomes between $5,000 and $15,000. All participants had completed high school or had the general equivalency diploma. None had completed a four-year college degree, although a number of participants had some college or technical school training. The distribution of participants was about equal among the categories of living alone, living with parents, and living with other relatives or a roommate. About one-third of the participants lived in a household with children.

Participants completed a questionnaire requesting information about demographic facts, attitudes toward self, attitudes toward the importance of food and nutrition, nutrition knowledge, and health habits. Each participant also completed a three-day food record. Factor analysis of the attitudes toward self, attitudes toward the importance of food and nutrition, and health habit variables yielded 14 meaningful factors. These factors and nutrition knowledge were evaluated for relationships with food selection and nutrient intake.

Participants consumed 73% of the RDA for energy. Protein intake was 126% of the RDA, calcium was 61% of the RDA, and iron was 54% of the RDA. Participants' mean intake of phosphorus, vitamin A, ascorbic acid, thiamin, riboflavin, and niacin was greater than 80% of the RDA for each. In agreement with the trend found by others (32, 77, 78), snacks were the source of about 17% of the calories of the participants.

The women who perceived themselves as leaders, self-confident, and aggressive had a relatively poor nutritional intake as indicated by a negative correlation of Super Person and 5 of the 15 dietary components studied, including calcium and ascorbic acid. Women who rated themselves as doing Your Own Thing also had a relatively poor nutritional intake. The women who perceived themselves to have a Traditional orientation to life (help others and work hard) had a relatively good nutritional intake as indicated by a positive correlation of Traditional with nutrient density for calcium and iron and number of meals in three days. Previous studies also have found that the relationship of self-concept to diet depends on the particular aspect of self that is studied (8, 9). In agreement with the findings of previous studies (10), being careful in other health areas was positively related to good dietary patterns. However, stress management and time management were

negatively related and unrelated, respectively, to good dietary patterns.

The attitude that Nutrition Is Important was found to be positively related to high nutrient density of iron, ascorbic acid intake, and foods from the four food groups. This positive relationship of attitude toward the importance of food and nutrition and food consumption is in agreement with previous studies (3, 56). In the area of nutrition knowledge and food-related behavior, previous studies have had conflicting results. Some have indicated that nutrition knowledge is not related to food consumption (3, 67, 68). Other studies have shown a relationship (61, 63). In this study, nutrition knowledge was found to be related to food consumption and nutrient intake.

Implications for Nutrition Education

This study indicated that people with a traditional orientation to life have a more nutritious food consumption pattern than some other groups. The young woman who is aggressive, self-confident, and a leader (Super Person), the young woman who does as she wishes, and the young woman who feels that she must deal with stress all tend to pay less attention to a healthful selection of foods than the person who does not perceive herself to have these characteristics. Therefore, there appears to be a need for nutrition education efforts aimed at the group of people who perceive

themselves as super people, are concerned with stress, or do as they wish.

This study also gives evidence of a need to teach nutrition information to increase knowledge, as well as stress positive attitudes about the importance of nutrition, in nutrition education efforts. The findings that there are relationships between health habits and food- and nutrition-related behavior also may be used in nutrition education efforts. All aspects that may cause a change in behavior (11) need to be used in education efforts when a change in behavior is the desired outcome.

Prediction of food- and nutrition-related behavior from attitudes, knowledge, and habits also may be useful in nutrition education. If further research verifies the findings of this study, educators may be able to aim nutrition education efforts toward certain segments of society that have been shown to have characteristic attitudes, knowledge, and habits.

Recommendations

This study dealt only with employed, single, young, adult females with limited education living in East Tennessee. Generalization of the results to other groups should be limited. There is a need for further studies to examine the relationship of self-concept to food consumption with other groups of people such as males, married people of

both genders, those with different educational backgrounds, and those who live in areas of the country different from that represented in this study.

There also is a need for further methodology research. The relationships of food records to actual dietary intake needs more research, as does understanding the relationship of records for a specific time period to usual practices.

Further research also needs to be done on the interrelationships of health habits, including the relationship of nutritious food choices to other health habits. Health habits that are found to be related to poor food and nutrition habits may need to be addressed in educational efforts, thus making the efforts broader than just nutrition education, but education for a healthy lifestyle.

There also is a need for further research on the usefulness of prediction equations for food- and nutrition-related behavior. If these equations prove to be useful indicators of food- and nutrition-related behavior, techniques for using these equations would need to be developed.

LIST OF REFERENCES

LIST OF REFERENCES

1. Foley, C., Hertzler, A. A., & Anderson, H. L. (1979) Attitudes and food habits--a review. J. Am. Diet. Assoc. 75, 13-18.

2. Grotkowski, M. L., & Sims, L. S. (1978) Nutritional knowledge, attitudes, and dietary practices of the elderly. J. Am. Diet. Assoc. 72, 499-506.

3. Schwartz, N. E. (1975) Nutrition knowledge, attitudes, and practices of high school graduates. J. Am. Diet. Assoc. 66, 28-31.

4. Adrian, J., & Daniel, R. (1976) Impact of socioeconomic factors on consumption of selected food nutrients in the United States. Amer. J. Agr. Econ. 58, 31-38.

5. Cronin, F. J., Krebs-Smith, S. M., Wyse, B. W., & Light, L. (1982) Characterizing food usage by demographic variables. J. Am. Diet. Assoc. 81, 661-673.

6. Kahn, P. (1976) One- and two-member household feeding patterns. Food Prod. Dev. 10, 22-30.

7. Rosenberg, M. (1981) The self-concept: Social product and social force. In Social Psychology: Sociological Perspectives (Rosenberg, M., & Turner, R., eds.). Basic Books, New York.

8. Schafer, R. B. (1979) The self-concept as a factor in diet selection and quality. J. Nutr. Ed. 11, 37-39.

9. Schafer, R. B., & Keith, P. M. (1982) Social-psychological factors in the dietary quality of married and single elderly. J. Am. Diet. Assoc. 81, 30-34.

10. Belloc, N. B., & Breslow, L. (1972) Relationship of physical health status and health practices. Preventive Med. 1, 409-421.

11. Ajzen, I., & Fishbein, M. (1980) Understanding Attitudes and Predicting Social Behavior. Prentice Hall, Englewood Cliffs, NJ.

12. Cunningham, J. L., Skinner, J. D., Cagle, L. C., Miller, S. W., & Teets, S. T. (1981) Development of CANKAP--A multidimensional measure of nutritional beliefs. J. Nutr. Ed. 13, 109-114.

13. Wylie, R. (1961) The Self-Concept. University of Nebraska Press, Lincoln.

14. Shrauger, J. S., & Schoeneman, T. J. (1979) Symbolic interactionist view of self-concept: Through the looking glass darkly. Psych. Bull. 86, 549-573.

15. James, W. (1890) The Principles of Psychology. Henry Holt, New York.

16. Mead, G. H. (1934) Mind, Self and Society. University of Chicago Press, Chicago.

17. McCullough, B. C. (1979) Social status and self-esteem: Objective and subjective status and the mediating role of social values. Sociological Symposium 28, 39-61.

18. Turner, R. H. (1976) The real self: From institution to impulse. Am. J. Soc. 81, 989-1016.

19. Gecas, V. (1982) The Self-Concept. Ann. Rev. Sociol. 8, 1-33.

20. McCall, G. J., & Simmons, J. L. (1966) Identities and Interactions. Free Press, New York.

21. Rosenberg, M. (1979) Conceiving the Self. Basic Books, New York.

22. Rogers, C. R., & Stevens, B. (1967) Person to Person: The Problem of Being Human. Real People Press, Lafayette, CA.

23. Rosen, G. M., & Ross, A. O. (1968) Relationship of body image to self-concept. J. Consult. & Clin. Psy. 32, 100.

24. Brenner, D., & Hinsdale, G. (1978) Body build stereotypes and self-identification in three age groups of females. Adolescence 13, 551-561.

25. Stunkard, A. J. (1975) From explanation to action in psychosomatic medicine: The case of obesity. Psychosomatic Med. 37, 195-236.

26. Goldblatt, P. B., Moore, M. E., & Stunkard, A. J. (1965) Social factors in obesity. J. Am. Med. Assoc. 192, 1039-1044.

27. Plutchik, R. (1976) Emotions and attitudes related to being overweight. J. Clin. Psy. 32, 21-24.

28. Cantor, M. B. (1980) Bad habits: Models of induced ingestion in satiated rats and people. In Nutrition and Behavior (Miller, S.A., ed.). The Franklin Institute Press, Philadelphia.

29. Monello, L. F., & Mayer, J. (1963) Obese adolescent girls, an unrecognized "minority" group? Am. J. Clin. Nutr. 13, 35-39.

30. Han, S. S., Easton, P. S., Himburg, S. P., Greenberg, B., & Khan, R. (1981) Adolescent perception of body image in a multi-ethnic community. School Food Serv. Res. Rev. 5, 27-30.

31. Huenemann, R. L., Shapiro, L. R., Hampton, M. C., & Mitchell, B. W. (1966) A longitudinal study of gross body composition and body conformation and their association with food and activity in a teen-age population. Am. J. Clin. Nutr. 18, 325-338.

32. Miller, T. M., Coffman, J. G., & Linke, R. A. (1980) Survey on body image, weight, and diet of college students. J. Am. Diet. Assoc. 77, 561-566.

33. Storz, N. S. (1982) Body weight concepts of adolescent girls in the home economics classroom. J. Home. Econ. 74, 41-43.

34. Storz, N. S., & Greene, W. H. (1983) Body weight, body image, and perception of fad diets in adolescent girls. J. Nutr. Ed. 15, 15-18.

35. Dwyer, J. T., Feldman, J. J., & Mayer, J. (1967) Adolescent dieters: Who are they? Am. J. Clin. Nutr. 20, 1045-1056.

36. Fransella, F., & Crisp, A. H. (1979) Comparisons of weight concepts in groups of neurotic, normal, and anorexic females. Brit. J. Psychiatry 134, 179-186.

37. Bruch, H. (1973) Eating Disorders: Obesity, Anorexia Nervosa, and the Person Within. Basic Books, New York.

38. Crisp, A. H., & Kalucy, R. S. (1974) Aspects of the perceptual disorder in anorexia nervosa. Br. J. Med. Phychol. 47, 349-361.

39. Garfinkel, P. E., Moldofsky, H., & Garner, D. M. (1977) Prognosis in anorexia nervosa as influenced by clinical features, treatment and self-perception. Can. Med. A. J. 117, 1041-1045.

40. Stunkard, A. J., & Mendelson, M. (1961) Disturbances in body image of some obese persons. J. Am. Diet. Assoc. 38, 328-331.

41. Jalso, S. B., Burns, M. M., & Rivers, J. M. (1965) Nutritional beliefs and practices. J. Am. Diet. Assoc. 47, 263-268.

42. Carruth, B. R., Mangel, M., & Anderson, H. L. (1977) Assessing change-proneness and nutrition-related behaviors. J. Am. Diet. Assoc. 70, 47-53.

43. Baird, P. C., & Schutz, H. G. (1980) Lifestyle correlates of dietary and biochemical measures of nutrition. J. Am. Diet. Assoc. 76, 228-235.

44. Macdonald, L. A., Wearring, G. A., & Moase, O. (1983) Factors affecting the dietary quality of adolescent girls. J. Am. Diet. Assoc. 82, 260-263.

45. Granzin, K. L., & Bahn, K. D. (1982) Personal values as an explanation of food usage habits. Home Econ. Res. J. 10, 401-410.

46. McGuire, W. J. (1980) Conceptualizing attitudes and attitude change for nutritional research and education. In Attitude Theory and Measurement in Food and Nutrition Research. Proceedings of a Symposium, June 15-17, 1980. The Penn. State University, University Park.

47. Dwyer, J. T., Feldman, J. J., & Mayer, J. (1970) Nutritional literacy of high school students. J. Nutr. Ed. 2, 59-66.

48. Picardi, S. M., & Porter, D. (1976) Multidimensional evaluation of a food and nutrition minicourse. J. Nutr. Ed. 8, 162-168.

49. Spitze, H. T. (1976) Curriculum materials and nutrition learning at the high school level. J. Nutr. Ed. 8, 59-61.

50. McCarthy, M. E., & Sabry, J. H. (1973) Canadian university student's nutrition misconceptions. J. Nutr. Ed. 5, 193-196.

51. Graves, K., Shannon, B., Sims, L., & Johnson, S. (1982) Nutrition knowledge and attitudes of elementary school students after receiving nutrition education. J. Am. Diet. Assoc. 81, 422-427.

52. Shannon, B., Marbach, E. S., Graves, K., & Sims, L. S. (1981) Nutrition knowledge, attitudes, and teaching effectiveness of K-6 teachers. J. Nutr. Ed. 13, 145-149.

53. Skinner, J. D., & Woodburn, M. J. (1983) Nutrition-related characteristics of high school teachers and student performance. J. Nutr. Ed. 15, 99-104.

54. Penner, K. P., & Kolasa, K. M. (1983) Secondary teachers' nutrition knowledge, attitudes, and practices. J. Nutr. Ed. 15, 141-145.

55. Soliah, L. A. L., Newell, G. K., Vaden, A. G., & Dayton, A.D. (1983) Establishing the need for nutrition education: II. Elementary teachers' nutrition knowledge, attitudes, and practices. J. Am. Diet. Assoc. 83, 447-453.

56. Axelson, M. L., & Penfield, M. P. (1983) Food- and nutrition-related attitudes of elderly persons living alone. J. Nutr. Ed. 15, 23-27.

57. Ehlers, K. M., & Fox, H. (1982) Food cooperative shoppers: Nutrition knowledge, attitudes, and concerns. J. Am. Diet. Assoc. 80, 160-162.

58. Fjeld, C. R., Sommer, R., Becker, F. D., & Warholic, J. (1983) Nutrition knowledge and preferences of food cooperative shoppers. J. Am. Diet. Assoc. 82, 389-393.

59. Freeland-Graves, J. H., Greninger, S. A., Vickers, J., Bradley, C. L., & Young, R. K. (1982) Nutrition knowledge of vegetarians and nonvegetarians. J. Nutr. Ed. 14, 21-26.

60. Yetley, E. A., & Roderuck, C. (1980) Nutrition knowledge and health goals of young spouses. J. Am. Diet. Assoc. 77, 31-41.

61. Traver, D. S. (1982) The food-related behavior of young childless couples. Doctoral Dissertation, The University of Tennessee, Knoxville.

62. Schwartz, N. E., & Barr, S. I. (1977) Mothers-- Their attitudes and practices in perinatal nutrition. J. Nutr. Ed. 9, 169-172.

63. Eppright, E. S., Fox, H. M., Fryer, B. A., Lamkin, G. H., & Vivian, V. M. (1970) 2. Nutrition knowledge and attitudes of mothers. J. Home Econ. 62, 327-332.

64. Phillips, D. E., Bass, M. A., & Yetley, E. (1978) Use of food and nutrition knowledge by mothers of preschool children. J. Nutr. Ed. 10, 73-75.

65. Birch, L. L. (1980) The relationship between children's food preferences and those of their parents. J. Nutr. Ed. 12, 14-18.

66. Pliner, P. (1983) Family resemblance in food preferences. J. Nutr. Ed. 15, 137-140.

67. Beavers, I., Kelley, M., & Flenner, J. (1982) Nutrition knowledge, attitudes, and food purchasing practices of parents. Home Econ. Res. J. 11, 134-142.

68. Perron, M., & Endres, J. (1985) Knowledge, attitudes, and dietary practices of female athletes. J. Am. Diet. Assoc. 85, 573-576.

69. Wang, V. L. (1971) Food information of homemakers and 4-H youth. J. Am. Diet. Assoc. 58, 215-218.

70. Steelman, V. P. (1976) Attitudes toward food as indicators of subcultural value systems. H. Econ. Res. J. 5, 21-32.

71. Spitze, H. T. (1983) Nutrition knowledge of a sample of university-employed men. J. Nutr. Ed. 15, 54-55.

72. Wax, R. H., & Wax, M. L. (1978) How people stop smoking: An exploratory study. Mid-American Rev. Soc. 3, 1-15.

73. Brooker, G. (1976) The self-actualizing socially conscious consumer. J. Consumer Res. 3, 107-112.

74. Gottschalk, P. L., Macauley, C. M., Sawyer, J. M., & Miles, J. E. (1977) Nutrient intakes of university students living in residence. J Can. Diet. Assoc. 38, 47-54.

75. Wakefield, L. M., & Miller, M. C. (1971) Food preferences, habits, and intake. J. Home Econ. 63, 45-47.

76. Stasch, A. R., Johnson, M. M., & Spangler, G. J. (1970) Food practices and preferences of some college students. J. Am. Diet. Assoc. 57, 523-527.

77. Jakobovits, C., Halstead, P., Kelley, L., Roe, D. A., & Young, C. M. (1977) Eating habits and nutrient intakes of college women over a thirty-year period. J. Am. Diet. Assoc. 71, 405-411.

78. Khan, M. A., & Lipke, L. K. (1982) Snacking and its contribution to food and nutrient intake of college students. J. Am. Diet. Assoc. 81, 583-587.

79. In-depth USDA food consumption data points to health-related diet changes. (1980) Food Prod. Dev. 14(8), 78-81.

80. Hertzler, A. A., & Vaughan, C. E. (1979) The relationship of family structure and interaction to nutrition. J. Am. Diet. Assoc. 74, 23-27.

81. Hernon, J. F., Skinner, J. D., Andrews, F. E., & Penfield, M. P. (1986) Nutrient intakes and foods selected by college students: Comparisons among subgroups divided by energy intake. J. Am. Diet. Assoc. 86, 217-221.

82. Ostrom, S., & Labuza, T. P. (1977) Analysis of a seven-day diet survey of college students. Food Tech. 31(5), 68-76.

83. Windham, C. T., Wyse, B. W., & Hansen, R. G. (1983) Nutrient density of diets in the USDA nationwide food consumption survey, 1977-1978: II. Adequacy of nutrient density consumption practices. J. Am. Diet. Assoc. 82, 34-43.

84. Windham, C. T., Wyse, B. W., Hansen, R. G., & Hurst, R. L. (1983) Nutrient density of diets in the USDA nationwide food consumption survey, 1977-1978: I. Impact of socioeconomic status in dietary density. J. Am. Diet. Assoc. 82, 28-34.

85. McCullough, J. (1980) Using attitude research to understand consumer food behavior. In Attitude Theory and Measurement in Food and Nutrition Research. Proceedings of a Symposium, June 15-17, 1980. The Penn. State University, University Park.

86. Wimberley, R. C. (1980) Issues in the measurement of food and nutrition attitudes. In Attitude Theory and Measurement in Food and Nutrition Research. Proceedings from a Symposium, June 15-17, 1980. The Penn. State University, University Park.

87. Bell, C. G., & Lamb, M. W. (1973) Nutrition education and dietary behavior of fifth graders. J. Nutr. Ed. 5, 196-199.

88. Knutson, A., & Newton, M. E. (1960) Behavioral factors in nutrition education. J. Am. Diet. Assoc. 37, 222-225.

89. Mitchell, J. (1982) Looking after ourselves: An individual responsibility. Roy. Soc. Health J. 102, 169-173.

90. Janis, I. L. (1954) Personality correlates of susceptibility to persuasion. J. Personality 22, 504-518.

91. Vermeersch, J. A., & Swenerton, H. (1980) Interpretations of nutrition claims in food advertisements by low-income consumers. J. Nutr. Ed. 12, 19-25.

92. Bonjean, C. M., Hill, R. J., & McLemore, S. D. (1967) Sociological Measurement. Chandler, San Francisco.

93. Buros, O. K. (Ed.). (1938) Mental Measurements Yearbook. Rutgers University, New Brunswick, NJ.

94. Buros, O. K. (Ed.). (1941) Second Mental Measurements Yearbook. Mental Measurements Yearbook, Highland Park, NJ.

95. Buros, O. K. (Ed.). (1949) Third Mental Measurements Yearbook. Gryphon Press, Highland Park, NJ.

96. Buros, O. K. (Ed.). (1953) Fourth Mental Measurements Yearbook. Gryphon Press, Highland Park, NJ.

97. Buros, O. K. (Ed.). (1959) Fifth Mental Measurements Yearbook. Gryphon Press, Highland Park, NJ.

98. Buros, O. K. (Ed.). (1965) Sixth Mental Measurements Yearbook. Gryphon Press, Highland Park, NJ.

99. Buros, O. K. (Ed.). (1972) Seventh Mental Measurements Yearbook. Gryphon Press, Highland Park, NJ.

100. Buros, O. K. (Ed.). (1978) Eighth Mental Measurements Yearbook. Gryphon Press, Highland Park, NJ.

101. Robinson, J. P., & Shaver, P. R. (1969) Measures of Social Psychological Attitudes. Institute for Social Research--University of Michigan, Ann Arbor.

102. Robinson, J. P., & Shaver, P. R. (1973) Measures of Social Psychological Attitudes (Revised ed.). Institute for Social Research, University of Michigan, Ann Arbor.

103. Wylie, R. (1974) The Self-Concept (Revised ed.). University of Nebraska Press, Lincoln.

104. Diggory, J. C. (1966) Self-Evaluation: Concepts and Studies. John Wiley & Sons, New York.

105. Kinch, J., Falk, R. E., & Anderson, D. (1983) A self-image inventory: Its theoretical background, reliability and validity. Symbolic Interaction 6(2), 229-242.

106. Turner, R. H. (1975) Is there a quest for identity? Sociological Quarterly 16, 148-161.

107. Turner, R. H., & Schutte, J. (1981) The true self method for studying the self-conception. Symbolic Interaction 4, 1-20.

108. UW-SP (1980) Lifestyle Assessment Questionnaire. UW-SP Institute for Lifestyle Improvement--University of Wisconsin, Stevens Point.

109. USDHHS (1981) Health Style--A Self Test. US Dept. of Health and Human Services. Public Health Service, Washington, DC.

110. Petersen, M. E., & Kies, C. (1972) Nutrition knowledge and attitudes of early elementary teachers. J. Nutr. Ed. 4, 11-15.

111. Calkins, A. E. (1979) Conforming and nonconforming food-related behavior, values, and sociodemographic characteristics of young adults. Doctoral Dissertation, The University of Tennessee, Knoxville.

112. Lackey, C. J., Kolasa, K. M., Penner, K. A., & Mutch, B. L. (1981) Development of the NKT--A general nutrition knowledge test for teachers. J. Nutr. Ed. 13, 100-101.

113. Bedgood, B. L., & Tuck, M. B. (1983) Nutrition knowledge of high school athletic coaches in Texas. J. Am. Diet. Assoc. 83, 672-677.

114. Fewster, W. J., Bostian, L. R., & Powers, R. D. (1973) Measuring the connotative meanings of foods. Home Econ. Res. J. 2, 44-53.

115. Sims, L. S. (1981) Toward an understanding of attitude assessment in nutrition research. J. Am. Diet. Assoc. 78, 460-466.

116. Olson, J. C. (1980) Attitude theory and research from an information-processing perspective. In Attitude Theory and Measurement in Food and Nutrition Research. Proceedings of a Symposium, June 15-17, 1980. The Penn. State University, University Park.

117. Sims, L. S. (1980) Measuring nutrition-related attitudes: State of the the art. In Attitude Theory and Measurement in Food and Nutrition Research. Proceedings of a Symposium, June 15-17, 1980. The Penn. State University, University Park.

118. Carruth, B. R., & Anderson, H. L. (1977) Scaling criteria in developing and evaluating an attitude instrument. J. Am. Diet. Assoc. 70, 42-47.

119. Lohr, L. A., & Carruth, B. R. (1979) A nutrition attitude instrument for nursing students. J. Am. Diet. Assoc. 74, 140-145.

120. Olson, J. C., & Sims, L. S. (1980) Assessing nutrition knowledge from an information processing perspective. J. Nutr. Ed. 12, 157-161.

121. Sullivan, A. D., & Schwartz, N. E. (1981) Assessment of attitudes and knowledge about diet and heart disease. J. Nutr. Ed. 13, 106-108.

122. Rosander, K., & Sims, L. S. (1981) Measuring effects of an affective-based nutrition education intervention. J. Nutr. Ed. 13, 102-105.

123. Sims, L. S. (1978) Dietary status of lactating women. II. Relation of nutritional knowledge and attitudes to nutrient intake. J. Am. Diet. Assoc. 73, 147-154.

124. Sims, L. S. (1978) Food-related value-orientations, attitudes, and beliefs of vegetarians and nonvegetarians. Ecol. Food & Nutr. 7, 23-35.

125. Krantzler, N. J., Mullen, B. J., Comstock, E. M., Holden, C. A., Schutz, H. G., Grivetti, L. E., & Meiselman, H. L. (1982) Methods of food intake assessment--an annotated bibliography. J. Nutr. Ed. 14, 108-119.

126. Marr, J. W. (1971) Individual dietary surveys: Purposes and methods. World Rev. Nutr. Diet. 13, 105-164.

127. Gersovitz, M., Madden, J. P., & Smiciklas-Wright, H. (1978) Validity of the 24 hour dietary recall and seven day record for group comparison. J. Am. Diet. Assoc. 73, 48-55.

128. Stunkard, A. J., & Waxman, M. (1981) Accuracy of self-reports of food intake. J. Am. Diet. Assoc. 79, 547-551.

129. Chalmers, F. W., Clayton, M. M., Gates, L. P., Tucker, R. E., Wertz, A. W., Young, C. M., & Foster, W. D. (1952) The dietary record--How many and which days? J. Am. Diet. Assoc. 28, 711-717.

130. Houser, H. B., & Bebb, H. T. (1981) Individual variation in intake of nutrients by day, month, and season and relation to meal patterns: Implications for dietary survey methodology. In Committee on Food Consumption Patterns, Food and Nutrition Board--NRC (eds.). Assessing Changing Food Consumption Patterns. National Academy Press, Washington, DC.

131. Leverton, R. M., & Marsh, A. G. (1939) Comparison of food intakes for weekdays and for Saturday and Sunday. J. Home Econ. 31, 111-114.

132. Young, C. M. (1981) Dietary methodology. In Committee on Food Consumption Patterns, Food and Nutrition Board--NRC (eds.). Assessing Changing Food Consumption Patterns. National Academy Press, Washington, DC.

133. Salvetti, N. N. (1982) Factors affecting food-related behavior of adolescents. M.S. Thesis, The University of Tennessee, Knoxville.

134. Food and Nutrition Board. (1980) Recommended Dietary Allowances, 9th rev. ed. National Academy of Sciences, Washington, DC.

135. SAS (1982) SAS User's Guide: Basics. SAS Institute, Cary, NC.

136. Nie, N. H., Hull, C. H., Jenkins, J. G., Steinbrenner, K., & Bent, D. H. (1975) Statistical Package for the Social Sciences. McGraw-Hill, New York.

137. SAS (1982) SAS User's Guide: Statistics. SAS Institute, Cary, NC.

138. Ebel, R. (1979) Essentials of Educational Measurement, 3rd ed. Prentice Hall, Englewood Cliffs, NJ.

139. Harman, H. H. (1976) Modern Factor Analysis. University of Chicago Press, Chicago.

140. Cronbach, L. J., Gleser, G. C., Nanda, H., & Rajartnam, N. (1972) The dependability of behavior measurement: Theory of generalizability for scores and profiles. John Wiley & Sons, New York.

141. Hull, C. H., & Nie, N. H. (1981) SPSS Update 79. McGraw-Hill, New York.

142. Skinner, J. D., Salvetti, N. N., Ezell, J. M., Penfield, M. P., & Costello, C. A. (1985) Appalachian adolescents' eating patterns and nutrient intakes. J. Am. Diet. Assoc. 85, 1093-1099.

143. USDA (1985) USDA Nutrient Data Base for Standard Reference, Release 5. Human Nutrition Information Services, Hyattsville, MD.

144. Watt, B. K., & Merrill, A. L. (1963) Composition of Foods, Agricultural Handbook #8. US Dept. of Agriculture, Washington, DC.

145. Hansen, R. G., & Wyse, B. W. (1980) Expression of nutrient allowances per 1,000 kilocalories. J. Am. Diet. Assoc. 76, 223-227.

146. Colliver, J. A., Frank, S., & Frank, A. (1983) Similarity of obesity indices in clinical studies of obese adults: A factor analytic study. Am. J. Clin. Nutr. 38, 640-647.

APPENDIXES

APPENDIX A

PLACES OF EMPLOYMENT OF YOUNG WOMEN

PLACES OF EMPLOYMENT OF YOUNG WOMEN

Carson Newman College

Cooper Institute

Maryville College

Proffitt's Department Stores

Pro Staff--Professional Staffing Services

Roane State Community College

Shelby Williams Industries

State Technical Institute at Knoxville

The University of Tennessee, Knoxville

Walters State Community College

APPENDIX B

QUESTIONNAIRE FOR YOUNG WOMEN

A SURVEY OF YOUNG ADULTS

You have been selected to participate in a survey of young adults. The purpose of the survey is to determine food habits and identify factors related to food habits. Your participation in the study is important to provide a representative sample of young adults. Participation in this study is voluntary. Return of the completed survey form indicates willingness to participate in the study. Information will be reported as group data and anonymity of individual participants will be maintained.

You will be asked to answer questions about your habits and lifestyle and to keep a record of your food intake for three days. Instructions precede each group of questions in the survey. Please answer all questions. If you wish to comment on any questions or to qualify your answers, feel free to use the space in the margins.

Participation in this study involves no known risk. As a participant in this study, you will receive a computer analysis of your diet. If you have any questions regarding this survey, please contact the project directors listed at the bottom of this page.

Thank you for your help.

Project Directors:
Diane Libby, Graduate Student
Jean D. Skinner, Assistant Professor
Department of Nutrition and Food Sciences
College of Home Economics
The University of Tennessee
Knoxville, TN 37996-1900
(615) 974-5445

Part I: Feelings About Food

For each of the following statements, please indicate whether you strongly agree, agree, disagree, or strongly disagree by circling the number which best represents your feelings about food.

		(Please circle your response)			
		STRONGLY AGREE	AGREE	DISAGREE	STRONGLY DISAGREE
1.	I am concerned about eating nutritious foods throughout the day.	4	3	2	1
2.	Nutrition is not so important as long as I eat a lot of food.	4	3	2	1
3.	I just don't have time to think much about nutrition.	4	3	2	1
4.	I feel that as long as I am maintaining my weight, I don't have to worry about nutrition.	4	3	2	1
5.	As long as the doctor doesn't say anything to me about nutrition, I don't think I need to worry about it.	4	3	2	1
6.	I feel that if I drink milk, I don't have to worry about nutrition.	4	3	2	1
7.	Nutrition is important, and one should not be careless about it.	4	3	2	1
8.	Even if I take vitamins, I feel that I should be concerned about the foods I eat.	4	3	2	1
9.	I feel the foods I eat now will affect my future health.	4	3	2	1
10.	My food has so many vitamins added that I don't have to bother about nutrition.	4	3	2	1

For each question in this section, choose the answer that corresponds to the best (most correct) of the four response choices. Put the letter of your answer choice in the space beside the question number.

_____ 11. What is the best way to get all the nutrients you need every day?

a. Drink lots of milk.
b. Eat different kinds of foods.
c. Eat lots of meat.
d. Take vitamin pills.

_____ 12. Why are fast-food restaurants often cheaper places to eat than other restaurants?

a. Their food is low in nutrients and calories.
b. They do not have to meet food sanitation standards.
c. They have very few expenses.
d. They usually are located in low-rent areas.

_____ 13. Which of the following foods contains the most calories?

a. 1 cup whole milk
b. 1 dinner roll
c. 4 ounces of steak
d. 10 potato chips

_____ 14. Which of the following family members needs the most protein?

a. 10-year-old daughter who takes ballet
b. 15-year-old son who plays football
c. 35-year-old mother who is pregnant
d. 37-year-old father who is a farmer

_____ 15. If fruits are preserved by freezing, which of the following characteristics usually is changed?

a. Acidity
b. Digestibility
c. Nutrient content
d. Texture

_____ 16. Which of the following foods is the main ingredient used in the manufacture of imitation bacon?

a. Corn
b. Eggs
c. Milk
d. Soybeans

_____ 17. Joan bought a big box of a new dry cereal because it had coupons on the box but did not like the cereal. What should she do the next time she wants to try a new cereal?

a. Buy a cereal she can cook.
b. Buy a cereal that looks like one she has tried before.
c. Buy a small box of the new cereal.
d. Do not buy cereal with coupons on the box.

____ 18. Which of the these fast food meals would provide the greatest variety of nutrients?

a. Chicken, mashed potatoes, and roll
b. Hamburger, french fries, and Coke
c. Hot dog and milk shake
d. Sausage-cheese pizza and salad

____ 19. What is the main reason that people in Iowa do not eat as much fresh seafood as the people in Florida?

a. Fresh seafood is expensive because it has to be shipped long distances.
b. Many people in Iowa catch their own fish in local lakes.
c. Most people in Iowa do not like seafood.
d. Polluted water in Iowa has caused a shortage of fish.

____ 20. A serving of which of the following foods contains the most iron?

a. Cake
b. Hamburger
c. Milk
d. Pineapple

____ 21. What probably would happen if people in the U.S. ate more vegetable protein and less meat?

a. Meat prices would go up.
b. More food would be available to send to hungry people in other countries.
c. People would not be as healthy.
d. There would not be enough food for animals in the U.S.

____ 22. Which one of these people would need the most calories?

a. A baby
b. A 6-year-old child
c. A 10-year-old child
d. An adult man

____ 23. What is the most likely reason that some young people do not eat many kinds of vegetables?

a. They cannot afford many kinds.
b. They cannot get many kinds in the grocery store.
c. They do not know how to cook many kinds.
d. They have not learned to like many kinds.

____ 24. Why are nitrites used in ham and bacon?

a. To add flavor, fix color, and prevent bacterial growth.
b. To improve the vitamin content.
c. To increase the tenderness of the product and reduce time required for cooking.
d. To speed up the curing process.

____ 25. What is a major reason that young people choose to eat candy, potato chips, and Cokes even though they know these foods are not the most nutritious snacks?

a. Their parents tell them to eat these foods.
b. These foods always are cheaper than more nutritious snacks.
c. These foods are easier to digest.
d. They like to eat the same foods their friends do.

____ 26. How important is it for people in the U.S. to use vitamin and mineral supplements?

a. Essential for everyone because the food is processed highly
b. Necessary to ensure that the diet contains enough of the B vitamins
c. Not necessary if the diet is planned very well
d. Of little use because synthetic vitamins are not effective

____ 27. What nutritional advantage does an expensive piece of steak have compared to a cheaper piece?

a. It probably has less fat than the cheaper piece.
b. It probably has more protein than the cheaper piece.
c. It probably has more vitamins and minerals than the cheaper piece.
d. It probably has no nutritional advantage over the cheaper piece.

____ 28. Which of the following foods provides energy but not many nutrients?

a. Carrot sticks
b. Celery with cheese
c. Hamburger
d. Kool-Aid

____ 29. Three employees compared what they ate for breakfast. Karen had a hard-cooked egg, tomato juice, and cereal with milk. Lynn had a hamburger and a banana milkshake. Pat had toast and orange juice. Who had nutritionally balanced breakfast(s)?

a. None of the employees
b. Only Pat
c. Both Karen and Lynn
d. All the employees

____ 30. Which of these foods should be cooked before it is safe to eat?

a. Broccoli
b. Cabbage
c. Egg
d. Spinach

_____ 31. There has been heated debate about possible banning of an additive called Additive A in all food products. Although Additive A may be harmful to humans, several groups have protested the ban. Which of the following groups has a logical argument rather than a selfish interest?

a. Consumers that enjoy food products containing Additive A
b. Drug companies that manufacture Additive A and claim they have found from their research that it is safe for humans
c. Food companies that use Additive A in their products
d. Medical authorities that argue that the alternative may be more harmful to some people than Additive A is

_____ 32. What foods are needed by a 3-month-old infant?

a. Breast milk or formula only
b. Breast milk or formula and enriched cereal
c. Enriched cereal, pureed vegetables, orange juice, and milk
d. Some foods from each of the Four Food Groups

_____ 33. Why might two foods and nutrition books have different information on adequacy of nutrient intake of young people?

a. The author of one book had more recent information on food habits of young people.
b. The author of one book liked young people better.
c. The author of one book was known better.
d. The author of one book was paid more for writing the book.

Use the package label information on the following page to answer Questions 34 and 35.

_____ 34. Which of the following conclusions about the products would you reach from the information given on the package label?

a. All four products are good sources of vitamin D.
b. All four products provide the U.S. RDA for vitamin C.
c. Product A is better than Products B, C, and D for a person on a weight-reduction diet.
d. Product A is better than Products B, C, and D in protein content.

_____ 35. Which of the following conclusions about the ingredients of these products is most accurate to reach from the information given on the package label?

a. All four products have more oats than any other ingredient.
b. No artificial preservatives, flavors, or colors have been used.
c. The cereals are 40% sugar.
d. The products naturally contain many of the B vitamins.

NUTRITION INFORMATION PER SERVING

	REGULAR FLAVOR (PRODUCT A)		CINNAMON & SPICE (PRODUCT B)		ARTIFICIAL MAPLE & BROWN SUGAR (PRODUCT C)		APPLES & CINNAMON (PRODUCT D)	
SERVING SIZE (1 PACKET)	1 oz.		1 5/8 oz.		1 1/2 oz.		1 1/4 oz.	
SERVINGS PER CONTAINER	2		2		2		2	
	PER 1 OZ. CEREAL	PER 1 OZ. CEREAL AND ½ CUP VITAMIN D FORTIFIED WHOLE MILK	PER 1⅝ OZ. CEREAL	PER 1⅝ OZ. CEREAL AND ½ CUP VITAMIN D FORTIFIED WHOLE MILK	PER 1½ OZ. CEREAL	PER 1½ OZ. CEREAL AND ½ CUP VITAMIN D FORTIFIED WHOLE MILK	PER 1¼ OZ. CEREAL	PER 1¼ OZ. CEREAL AND ½ CUP VITAMIN D FORTIFIED WHOLE MILK
CALORIES	110	190	180	260	170	250	150	230
PROTEIN	4 G	8 G	5 G	9 G	5 G	9 G	4 G	8 G
CARBOHYDRATE	18 G	24 G	35 G	41 G	32 G	38 G	28 G	34 G
FAT	2 G	6 G	2 G	6 G	2 G	6 G	2 G	6 G
PERCENTAGE OF U.S. RECOMMENDED DAILY ALLOWANCES (U.S. RDA)								
PROTEIN	5 %	15 %	6 %	20 %	6 %	20 %	5 %	15 %
VITAMIN A	20 %	20 %	20 %	20 %	20 %	20 %	20 %	20 %
VITAMIN C	°	°	°	°	°	°	°	°
THIAMINE	20 %	20 %	20 %	20 %	20 %	20 %	20 %	20 %
RIBOFLAVIN	10 %	20 %	10 %	20 %	10 %	20 %	10 %	20 %
NIACIN	15 %	15 %	15 %	15 %	15 %	15 %	15 %	15 %
CALCIUM	10 %	20 %	10 %	20 %	10 %	20 %	10 %	20 %
IRON	20 %	20 %	20 %	20 %	20 %	20 %	20 %	20 %
VITAMIN D	°	10 %	°	10 %	°	10 %	°	10 %
VITAMIN B_6	20 %	20 %	20 %	20 %	20 %	20 %	20 %	20 %
FOLIC ACID	20 %	20 %	20 %	20 %	20 %	20 %	20 %	20 %
PHOSPHORUS	5 %	15 %	5 %	15 %	6 %	15 %	6 %	15 %

°CONTAINS LESS THAN 2% OF THE U.S. RDA FOR THIS NUTRIENT.
A SERVING CONTAINS ABOUT 0.3 G OF FIBER.

REGULAR FLAVOR INGREDIENTS: SPECIALLY PROCESSED ROLLED OATS, SALT, CALCIUM CARBONATE (A SOURCE OF CALCIUM), VEGETABLE GUM, CARAMEL FLAVOR, VITAMIM A PALMITATE, REDUCED IRON, NIACINAMIDE (ONE OF THE B VITAMINS), PYRIDOXINE HYDROCHOLORIDE (ONE OF THE B VITAMINS), THIAMINE MONONITRATE, RIBOFLAVIN, FOLIC ACID.

CINNAMON & SPICE INGREDIENTS: SPECIALLY PROCESSED ROLLED OATS, SUGAR, SALT, CALCIUM CARBONATE (A SOURCE OF CALCIUM), VEGETABLE GUM, CINNAMON, NATURAL SPICE FLAVORING, CARAMEL FLAVOR, VITAMIN A PALMITATE, REDUCED IRON, NIACINAMIDE (ONE OF THE B VITAMINS), PYRIDOXINE HYDROCHOLORIDE (ONE OF THE B VITAMINS), THIAMINE MONONITRATE, RIBOFLAVIN, FOLIC ACID.

ARTIFICIAL MAPLE & BROWN SUGAR INGREDIENTS: SPECIALLY PROCESSED ROLLED OATS, SUGAR, ARTIFICIAL FLAVORS, SALT, CALCIUM CARBONATE (A SOURCE OF CALCIUM), VEGETABLE GUM, VITAMIN A PALMITATE, REDUCED IRON, NIACINAMIDE (ONE OF THE B VITAMINS), PYRIDOXINE HYDROCHOLORIDE (ONE OF THE B VITAMINS), THIAMINE MONONITRATE, RIBOFLAVIN, FOLIC ACID.

APPLES & CINNAMON AND ARTIFICIAL APPLE FLAVOR INGREDIENTS: SPECIALLY PROCESSED ROLLED OATS, SUGAR, DEHYDRATED APPLE FLAKES, SALT, CALCIUM CARBONATE (A SOURCE OF CALCIUM), VEGETABLE GUM, CINNAMON, ARTIFICIAL FLAVOR, VITAMIN A PALMITATE, REDUCED IRON, NIACINAMIDE (ONE OF THE B VITAMINS), PYRIDOXINE HYDROCHOLORIDE (ONE OF THE B VITAMINS), THIAMINE MONONITRATE, RIBOFLAVIN, FOLIC ACID.

Part II: Feelings About Yourself

Evaluate yourself on each of the following descriptive adjectives. Remember that this is how you see yourself. If you find it difficult to rate yourself on an adjective because you do not ordinarily think of yourself in those terms, circle the X at the far right of that adjective. Consider four (4) to be the average for most young people. Please circle the number you think appropriate for yourself.

		(Please circle your response)							
	ADJECTIVES	MOST			AVERAGE			LEAST	I DO NOT ORDINARILY THINK OF MYSELF IN TERMS OF THIS ADJECTIVE
36.	Intelligent	7	6	5	4	3	2	1	X
37.	Self-confident	7	6	5	4	3	2	1	X
38.	Selfish	7	6	5	4	3	2	1	X
39.	Mature	7	6	5	4	3	2	1	X
40.	Physically attractive	7	6	5	4	3	2	1	X
41.	Leader	7	6	5	4	3	2	1	X
42.	Friendly	7	6	5	4	3	2	1	X
43.	Aggressive	7	6	5	4	3	2	1	X
44.	Honest	7	6	5	4	3	2	1	X
45.	Cooperative	7	6	5	4	3	2	1	X
46.	Talkative	7	6	5	4	3	2	1	X
47.	Foolish	7	6	5	4	3	2	1	X

The following are four things people sometimes say about discovering who they really are. For each please indicate whether you strongly agree, agree, disagree, or strongly disagree by circling the number in the appropriate column.

	(Please circle your response)			
	STRONGLY AGREE	AGREE	DISAGREE	STRONGLY DISAGREE
48. The way to find out who you really are is to work hard at a difficult and challenging task.	4	3	2	1
49. The way to find out who you really are is to help someone who needs your assistance.	4	3	2	1
50. The way to find out who you really are is to forget duties and inhibitions and do just whatever you feel like doing.	4	3	2	1
51. The way to find out who you really are is to tell your deepest feelings to someone you trust.	4	3	2	1

The following are reported ways of discovering who you really are. For each please circle the number in the appropriate column to indicate whether your feelings in that situation probably would be to strongly agree, agree, disagree, or strongly disagree.

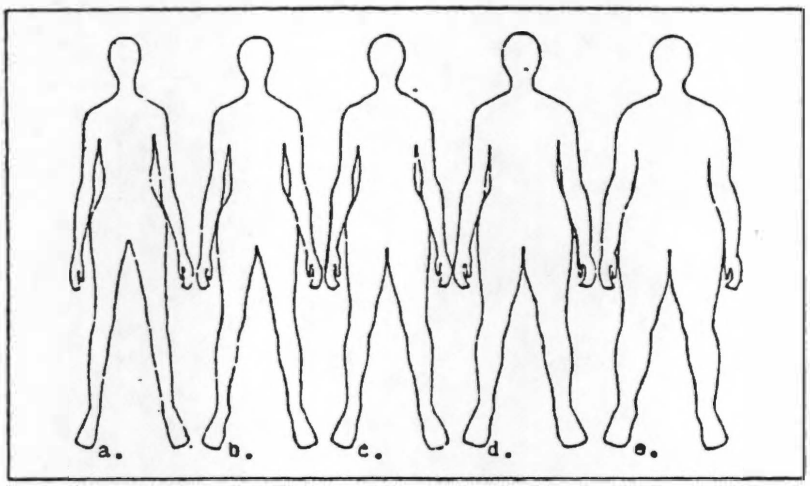
	(Please circle your response)			
	STRONGLY AGREE	AGREE	DISAGREE	STRONGLY DISAGREE
52. I felt my true self when one of my friends was badly hurt and I was the only one that was around at that time. She had been hit with a baseball bat and I did it. I threw down the bat and ran over to her. One of her teeth was on the ground and blood was coming out of her mouth. I felt helpless but I took her in the house and fixed her up really good. . . . By helping this girl, I felt like my true self.	4	3	2	1

		(Please circle your response)			
		STRONGLY AGREE	AGREE	DISAGREE	STRONGLY DISAGREE
53.	Last weekend I went skiing with the ski team (35 people). As usual I became ski team cook. To cook for 35 people and ski all day was a hassle. But that's me. . . . I therefore did both and tried to set it up as an accomplishment of the impossible. I thus competed with the odds that were against my favor--hence, I couldn't lose. Sometimes I hate myself for it, but I love to be busy and hate to be bored.	4	3	2	1
54.	The times I feel most real are when I refuse to accept or go along with the daily grind. For example, last week I cut a day of work (something rarely done) and went to the mountains alone just to do something I like. After the initial society-imposed guilt, I felt fantastic and unrestrained--not ever considering that I must go back. . . not whether I did right or wrong but whether I did what I felt or not.	4	3	2	1
55.	I felt my true self was expressed when I was living on a kibbutz. The people there were Israeli and American--and since I was Australian, they took me for what I was in that situation--and so they accepted me for what I was, and so those inhibitions that I may have no longer existed; I felt that I would say to people--this is me--no facade--I was able to project myself as a full human being--I felt a feeling of belongingness, also the feeling that I no longer had to conform to people's and groups' ideals--there was no stereotyping of people.	4	3	2	1

		(Please circle your response)			
		STRONGLY AGREE	AGREE	DISAGREE	STRONGLY DISAGREE
56.	Well, one morning the doorbell rang and when I answered it an old man accused my brother and me of having thrown bottles into a convent behind us. I knew that neither my brother nor I had been outside. So I had a very long and polite discussion with this man. I felt good being able to talk with this man by myself and not having someone else do it.	4	3	2	1
57.	My boyfriend got a terrible headache Saturday night and instead of going to a party as planned, I spent my time caring for and comforting him. I was disappointed but I felt very caring and loving. I guess I most like to care for people and feel "human" when I can help someone.	4	3	2	1
58.	Feeling creative, potent, blue water, angry, quiet, surfing, expressing myself freely, thoughts garbled; clear ungarbled actions must be an extension of your thoughts. Feelings flowing between mind and body. No hesitation, restriction. Up on the day-glow and ride serenely. Are you on the bus or off the bus?	4	3	2	1
59.	I met someone other than my fiance to whom I was very attracted. Although it involved risks, I entered into a relationship that I felt I really needed. I felt no guilt and have been open about it to anyone concerned about it. . . . I was honest with myself in openly expressing these feelings rather than repressing them and being sorry later for all I'd given up.	4	3	2	1

For the next group of questions, please select the answer that most closely states your feelings. Put the letter of your answer choice in the space beside the question number.

_____60. Select the outline drawing that you feel most closely resembles your actual body size.



____ 61. How do you feel about your present weight?

a. Very satisfied
b. Moderately satisfied
c. Neutral; don't think about it
d. Moderately dissatisfied
e. Very dissatisfied

____ 62. Are you currently trying to control your weight?

a. Yes; trying to gain weight
b. Yes; trying to maintain weight
c. Yes; trying to lose weight
d. No; not trying to control weight

Part III: Describing Your Lifestyle

For each of the following items, please indicate how frequently you engage in that behavior by circling the number in the appropriate column to indicate always, almost always, sometimes, almost never, or never.

		(Please circle your response)				
		ALWAYS	ALMOST ALWAYS	SOME-TIMES	ALMOST NEVER	NEVER
63.	I avoid smoking.	5	4	3	2	1
64.	I do vigorous exercises for 15-30 minutes at least 3 times a week (e.g., running, swimming, brisk walking).	5	4	3	2	1
65.	I have a job or do other work that I enjoy.	5	4	3	2	1
66.	I recognize early and prepare for events or situations likely to be stressful for me.	5	4	3	2	1
67.	I have close friends, relatives, or others to whom I can talk about personal matters and call on for help when needed.	5	4	3	2	1
68.	I participate in group activities (such as church and community organizations) or hobbies that I enjoy.	5	4	3	2	1
69.	I wear a seat belt while traveling short distances in a car.	5	4	3	2	1
70.	I wear a seat belt while traveling long distances in a car.	5	4	3	2	1
71.	I obey traffic rules and the speed limit when driving.	5	4	3	2	1
72.	I am careful when using potentially harmful products or substances (such as household cleaners, poisons, and electrical devices).	5	4	3	2	1
73.	I feel that there is not enough time to get everything done.	5	4	3	2	1

	(Please circle your response)				
	ALWAYS	ALMOST ALWAYS	SOME-TIMES	ALMOST NEVER	NEVER
74. I find that I accomplish all that I set out to do.	5	4	3	2	1
75. I take some time each day just for myself.	5	4	3	2	1
76. I find it easy to relax and express my feelings freely.	5	4	3	2	1
77. I get an adequate amount of sleep for my needs.	5	4	3	2	1
78. When cooking vegetables, I add salt to the cooking water.	5	4	3	2	1
79. I salt my food at the table.	5	4	3	2	1

We also need some demographic information for statistical purposes.

Please check [ ] the most appropriate category for each item.

80. What is your race/ethnic group?

_____ American Indian
_____ Black
_____ Hispanic
_____ Oriental
_____ White
_____ Other (specify) _____

81. What is your gender?

_____ Female (Go to item 82.)
_____ Male (Go to item 83.)

82. If female, are you pregnant?

_____ Yes
_____ No
_____ Don't know

Please check [ ] the most appropriate category for each item.

83. What is your highest level of education?

_____ Some high school
_____ High school diploma
_____ General equivalency diploma
_____ Some college
_____ Associate or technical degree
_____ Bachelor of Science or Bachelor of Arts degree
_____ Some graduate school
_____ Graduate degree

84. What is your approximate total income before taxes for 1984?

_____ $ 0 - $ 5,000
_____ $ 5,001 - $10,000
_____ $10,001 - $15,000
_____ $15,001 - $20,000
_____ $20,001 - $25,000
_____ $25,001 - $30,000
_____ $30,001 - $35,000
_____ $35,001 or more

85. How many hours per week do you usually work?

_____ 20 hours or less
_____ 21 - 30 hours
_____ 31 - 40 hours
_____ 41 hours or more

86. What type of physical work does your job require?

_____ Hard physical work (e.g., digging pits, felling trees)
_____ Moderate physical work (e.g., custodial work, house painting)
_____ Light physical work (e.g., assembly work, machine sewing, walking 2-3 mph)
_____ Very light physical work (e.g., typing, general laboratory work)

87. What other adults are living at your residence?

_____ Living alone
_____ Living at parent's home
_____ Living with husband/wife
_____ Living with husband/wife and other relatives
_____ Living with other relatives
_____ Living with one or more roommates (who are not relatives)

88. Are there children living at your residence?

_____ Yes
_____ No

Please respond to each of the following questions by writing your answer in the blank provided.

89. What is your age? _____ years

90. What is your height? _____ ft. _____ in.

91. What is your weight? _____ lbs.

92. When did you last weigh? _____ month _____ year

Do you have any additional comments on the information covered in this questionnaire? If so, please use this space for that purpose.

THANK YOU FOR TAKING THE TIME TO COMPLETE THIS QUESTIONNAIRE.

Part IV: Describing Your Food Consumption

Please keep a record of all foods eaten for three days. Please keep your records for a Tuesday, Thursday, and a Saturday. Do NOT alter your normal eating pattern for those days.

Record all food and beverages consumed. Don't forget the salad dressings, spreads on bread, gravies, and other additions. Indicate how the food was prepared (e.g., fried, baked). For mixed dishes, estimate and record amounts of the major ingredients (e.g., vegetable-beef soup--1/2 c beef, 1/4 c onions, 1/4 c carrots, 1/4 c potatoes, 1/8 c peas, 1 T celery; hamburger--McDonald's quarter-pounder with cheese). Read labels and list the levels of added nutrients or other pertinent information. For foods that often might be served in different ways, identify how yours was served (e.g., coffee, black; white bread, toasted and no spread; tossed lettuce salad without dressing). Greater accuracy results if you carry a notepad with you and record periodically through the day rather than try day-long recall. Estimate as closely as possible the quantities of food eaten. Use common household measures (e.g., 1/2 c, 2 T, 1 t).

Date_____

FOOD RECORD FORM

	Food and description	Amount	How food was prepared
1st time food was eaten time_____a.m._____p.m. place_____			
2nd time food was eaten time_____a.m._____p.m. place_____			
3rd time food was eaten time_____a.m._____p.m. place_____			
4th time food was eaten time_____a.m._____p.m. place_____			
5th time food was eaten time_____a.m._____p.m. place_____			
6th time food was eaten time_____a.m._____p.m. place_____			

	Food and description	Amount	How food was prepared
7th time food was eaten time_____a.m._____p.m. place_____			
8th time food was eaten time_____a.m._____p.m. place_____			
9th time food was eaten time_____a.m._____p.m. place_____			
10th time food was eaten time_____a.m._____p.m. place_____			
11th time food was eaten time_____a.m._____p.m. place_____			
12th time food was eaten time_____a.m._____p.m. place_____			

If you ate more than 12 times use the back of this sheet.

Date_____

FOOD RECORD FORM

	Food and description	Amount	How food was prepared
1st time food was eaten time_____a.m._____p.m. place_____			
2nd time food was eaten time_____a.m._____p.m. place_____			
3rd time food was eaten time_____a.m._____p.m. place_____			
4th time food was eaten time_____a.m._____p.m. place_____			
5th time food was eaten time_____a.m._____p.m. place_____			
6th time food was eaten time_____a.m._____p.m. place_____			

	Food and description	Amount	How food was prepared
7th time food was eaten time_____a.m._____p.m. place_____			
8th time food was eaten time_____a.m._____p.m. place_____			
9th time food was eaten time_____a.m._____p.m. place_____			
10th time food was eaten time_____a.m._____p.m. place_____			
11th time food was eaten time_____a.m._____p.m. place_____			
12th time food was eaten time_____a.m._____p.m. place_____			

If you ate more than 12 times use the back of this sheet.

Date_____

FOOD RECORD FORM

	Food and description	Amount	How food was prepared
1st time food was eaten time_____a.m._____p.m. place_____			
2nd time food was eaten time_____a.m._____p.m. place_____			
3rd time food was eaten time_____a.m._____p.m. place_____			
4th time food was eaten time_____a.m._____p.m. place_____			
5th time food was eaten time_____a.m._____p.m. place_____			
6th time food was eaten time_____a.m._____p.m. place_____			

	Food and description	Amount	How food was prepared
7th time food was eaten time_____a.m._____p.m. place_____			
8th time food was eaten time_____a.m._____p.m. place_____			
9th time food was eaten time_____a.m._____p.m. place_____			
10th time food was eaten time_____a.m._____p.m. place_____			
11th time food was eaten time_____a.m._____p.m. place_____			
12th time food was eaten time_____a.m._____p.m. place_____			

If you ate more than 12 times use the back of this sheet.

APPENDIX C

POSITIVE RESPONSES TO QUESTIONS ANSWERED BY YOUNG WOMEN

Table 15. Positive Responses to Questions Answered by Young Women.[a]

Attitude Scale		Knowledge Test		Self-Image Scale		Success Orientation Scale		Pleasure Orientation Scale		Health Habits Scale		Body Size Scale		Use of Salt Scale	
Q#	% Positive Response	Q#	% Correct	Q#	% > Average	Q#	% Positive Response	Q#	% Positive Response	Q#	% Positive Response	Q#	% Overweight, Dissatisfied, Trying to Lose Weight	Q#	% Do Not Use
Q1	80.4	Q11	79.7	Q36	58.2	Q48	68.0	Q50	20.9	Q63	64.1	Q60	32.7	RQ78	33.3
RQ2	98.0	12	54.2	37	43.8	49	66.0	51	37.9	64	27.5	61	48.4	RQ79	34.6
RQ3	61.4	13	30.7	38	22.9	52	51.6	54	54.9	65	81.0	62	57.9		
RQ4	91.5	14	71.2	39	73.2	53	54.2	55	74.5	66	39.9				
RQ5	88.2	15	43.1	40	41.8	56	90.9	58	30.1	67	78.4				
RQ6	98.7	16	91.5	41	36.6	57	88.9	59	58.2	68	52.9				
Q7	96.7	17	88.9	42	79.1					69	32.7				
Q8	93.5	18	66.7	43	43.1					70	45.1				
Q9	94.1	19	81.0	44	81.7					71	75.2				
RQ10	95.4	20	34.0	45	80.4					72	86.3				
		21	14.4	46	55.6					RQ73	52.3				
		22	40.5	47	24.8					Q74	50.3				
		23	94.1							75	41.1				
		24	46.4							76	38.6				
		25	55.6							77	54.2				
		26	64.0												
		27	42.5												
		28	71.2												
		29	44.4												
		30	61.4												
		31	63.4												
		32	24.2												
		33	94.8												
		34	73.9												
		35	49.0												
32.12 ± 3.57[c]		14.81 ± 3.61		56.68 ± 9.04		16.96 ± 2.28		14.59 ± 2.64		51.98 ± 7.04		8.42 ± 2.8		5.92 ± 2.36	
10-40[d]		0-25		0-84		6-24		6-24		15-75		3-12		2-8	
.79[e]				.74		.52		.53		.68		.77		.73	

[a] N = 153.

[b] See Appendix B.

[c] $\bar{x} \pm SD$.

[d] Possible score.

[e] Reliabities by Cronbach's alpha: $\frac{nr}{1 + (n - 1)r}$.

n = number of variables
r = mean multiple correlation

APPENDIX D

CATEGORIES USED FOR ANALYSIS BY TYPES OF FOOD FOR YOUNG WOMEN

CATEGORIES USED FOR ANALYSIS BY TYPES OF FOOD FOR YOUNG WOMEN*

Foods	Serving sizes
Milk Products	
Hard cheese	1 serving ≥ 1/2 oz and < 1 1/2 oz
Soft cheese	1 serving ≥ 1 oz and < 2 oz
Cottage cheese	1 serving ≥ 1/2 C and < 1 1/2 C
Yogurt	1 serving ≥ 1/2 C and < 1 1/2 C
Ice cream	1 serving ≥ 1/2 C and < 1 1/2 C
Milk shake	1 serving ≥ 1/2 C and < 1 1/2 C
Ice cream bar	1 serving ≥ 1 and < 3
Meat Products	
Meat, poultry, fish	1 serving ≥ 1 oz and < 4 oz
Eggs	1 serving ≥ 1 and < 3
Sausage and luncheon meat	1 serving ≥ 1 slice and < 3 slices
Bacon	1 serving ≥ 1 slice and < 4 slices
Ribs	1 serving ≥ 4 oz w/bones and < 24 oz w/bones
Legumes	
Beans	1 serving ≥ 1/2 C and < 1 1/2 C
Nuts	1 serving ≥ 1 oz and < 3 oz
Peanut butter	1 serving ≥ 1 Tbsp and < 4 Tbsp
Sunflower seeds	1 serving ≥ 1 oz and < 3 oz

*Adapted from Hernon, Skinner, Andrews, & Penfield (81).

Foods	Serving sizes
Legumes (continued)	
Soy bean curd	1 serving ≥ 1 oz and < 4 oz
Fried bean curd	1 serving ≥ 1 oz and < 3 oz
Vegelink	1 serving ≥ 1 and < 3
Fruits	
Raw fruit	1 serving ≥ 1/4 C or 1/2 fruit and < 1 C or 2 fruits
Cooked or canned fruit	1 serving ≥ 1/4 C and < 1 C
Melons (cantalope, honeydew)	1 serving ≥ 1/4 melon and < 1/2 melon
Raw Vegetables	
Any raw vegetables	1 serving ≥ 1/4 C and < 1 C
Tossed salad	1 serving ≥ 1/2 C and < 2 C
Alfalfa sprouts	1 serving ≥ 1/2 C and < 2 C
Cooked Starchy Vegetables	
Corn	1 serving ≥ 1/4 C or 1/2 vegetable and < 1 C or 2 vegetables
Potatoes	1 serving ≥ 1/4 C or 1/2 vegetable and < 1 C or 2 vegetables
French fries	1 serving ≥ 5 fries and < 25 fries
Cooked Other Vegetables	
Non-starchy vegetables	1 serving ≥ 1/4 C or 1/2 vegetable and < 1 C or 2 vegetables
Tomato sauce	1 serving ≥ 1/2 C and < 1 1/2 C

Foods	Serving sizes
Cooked Other Vegetables (continued)	
Mixed vegetables	1 serving ≥ 1/2 C and < 1 1/2 C
Bread	
Loaf bread	1 serving ≥ 1 slice and < 3 slices
Creakers	1 serving ≥ 2 crakers and < 8 crackers
Bread crumbs	1 serving ≥ 1/4 C and < 1 C
Bagel	1 serving ≥ 1 and < 3
Bran muffin	1 serving ≥ 1 and < 3
Corn fritters	1 serving ≥ 2 and < 8
Pancakes	1 serving ≥ 2 and < 5
Waffles	1 serving ≥ 2 squares and < 4 squares
Cereal	
Breakfast cereal	1 serving ≥ 1/2 oz and < 2 oz
Rice	1 serving ≥ 1/2 C and < 2 C
Grits	1 serving ≥ 1/2 C and < 1 1/2 C
Wheat germ	1 serving ≥ 1 Tbsp and < 4 Tbsp
Pasta	
Pasta	1 serving ≥ 1/2 C and < 2 C
Desserts	
Cookies	1 serving ≥ 2 and < 5
Marshmallows	1 serving ≥ 6 and < 15
Cake	1 serving ≥ 1 slice and < 2 slices

Foods	Serving sizes
Desserts (continued)	
Pie	1 serving ≥ 1 slice and < 2 slices
Snack cakes	1 serving ≥ 1 and < 3
Pudding	1 serving ≥ 1/2 C and < 1 C
Candy bar	1 serving ≥ 1/2 and < 2
Jello	1 serving ≥ 1/2 C and < 2 C
Sherbert	1 serving ≥ 1/2 C and < 2 C
Granola bar	1 serving ≥ 1 bar and < 3 bars
Chocolate	1 serving ≥ 1 oz and < 3 oz
Popscile	1 serving ≥ 1 and < 3
Candy	1 serving ≥ 1 oz and < 4 oz
Doughnuts	1 serving ≥ 1 and < 3
Cupcakes	1 serving ≥ 1 and < 3
Salty Snacks	
Potato chips	1 serving ≥ 1 oz and < 3 oz
Cheese snacks	1 serving ≥ 1 oz and < 3 oz
Nacho chips	1 serving ≥ 1 oz and < 3 oz
Popcorn	1 serving ≥ 1 C and < 4 C
Fluid Milk	
All fat levels of milk	1 serving ≥ 1/4 C and < 2 C
Hot chocolate	1 serving ≥ 1/2 C and < 2 C
Fruit and Vegetable Beverages	
Fruit and vegetable juice	1 serving ≥ 1/4 C and < 10 oz

Foods	Serving sizes
Fruit and Vegetable Beverages (continued)	
Apple cider	1 serving ≥ 1/4 C and < 10 oz
Tea and Coffee	
Tea	1 serving ≥ 1/2 C and < 2 C
Coffee	1 serving ≥ 1/2 C and < 2 C
Carbonated Beverages	
Any carbonated beverages	1 serving ≥ 1/4 C and < 2 C
Alcoholic Beverages	
Beer	1 serving ≥ 6 oz and < 12 oz
Mixed drink	1 serving ≥ 6 oz and < 12 oz
Wine	1 serving ≥ 3 oz and < 6 oz
Other Beverages	
Tang	1 serving ≥ 1/2 C and < 2 C
Kool-aid	1 serving ≥ 1/2 C and < 2 C
Gatorade	1 serving ≥ 1/2 C and < 2 C
Fats	
Margarine	1 serving ≥ 1 tsp and < 2 Tbsp
Butter	1 serving ≥ 1 tsp and < 2 Tbsp
Salad dressing	1 serving ≥ 1 Tbsp and < 3 Tbsp
Sour cream	1 serving ≥ 1 Tbsp and < 3 Tbsp
Whipped cream	1 serving ≥ 1 Tbsp and < 3 Tbsp
Cream	1 serving ≥ 1 tsp and < 3 Tbsp

Foods	Serving sizes
	Fats (continued)
Gravy	1 serving ≥ 2 Tbsp and < 5 Tbsp
Hollandaise sauce	1 serving ≥ 2 Tbsp and < 5 Tbsp
	Sugars
Table sugar	1 serving ≥ 1 tsp and < 1 Tbsp
Syrups	1 serving ≥ 1 Tbls and < 4 Tbsp
Jelly or jams	1 serving ≥ 1 Tbls and < 3 Tbsp
Honey	1 serving ≥ 1 Tbsp and < 4 Tbsp

COMBINATION FOODS

Foods	Serving sizes	Food group equivalents
Tomato soup	1 serving ≥ 1 C and < 2 C	1 cooked other vegetable
Chili w/meat	1 serving ≥ 1/2 C and < 2 C	1 meat
Chili w/beans	1 serving ≥ 1 C and < 2 C	1 legume
Chili w/meat and beans	1 serving ≥ 1 C and < 2 C	1 legume, 1 meat
Leek soup	1 serving ≥ 2 C and < 4 C	1 cooked other vegetable
Vegetable soup	1 serving ≥ 1 C and < 2 C	1 cooked other vegetable
Vegetable w/beef soup	1 serving ≥ 1 C and < 2 C	1 cooked other vegetable and 1 meat
Chicken noodle soup	1 serving ≥ 1 C and < 2 C	1 meat, 1 pasta
Cream of mushroom Cream of chicken	1 serving ≥ 1 C and < 2 C (if prepared w/milk)	------- 1 milk product
Tuna salad	1 serving ≥ 1/4 C and < 1 1/2 C	1 meat
Pizza	1 serving ≥ 2 slices and < 4 slices	1 bread, 1 milk product, 1 meat (if meat is specified)
	2 servings ≥ 1/2 pie and < 1 pie	2 bread, 2 milk product, 1 meat, 1 cooked other vegetable
Tortillas	1 serving ≥ 1 and < 3	1 bread
Spaghetti	1 serving ≥ 1 C and < 2 C	1 pasta, 1 cooked other vegetable
Chicken pot pie	1 serving ≥ 1 C and < 2 1/2 C	1 meat, 1 cooked other vegetable, 1 bread
Beef burritos	1 serving ≥ 1 and < 3	1 bread, 1 meat
Tacos	1 serving ≥ 1 and < 2	1 bread, 1 meat
Chicken and dumplings	1 serving ≥ 1 C and < 2 C	1 bread, 1 meat
Macaroni and cheese	1 serving ≥ 1 C and < 2 C	1 pasta, 1 milk product
Beef stew	1 serving ≥ 1 C and < 3 C	1 meat, 1 cooked vegetable, 1 cooked starch vegetable

APPENDIX E

COMPOSITION OF FOODS--REVISED HANDBOOK 8

COMPOSITION OF FOODS--REVISED HANDBOOK 8

Number	Title	Year
8-1	Dairy and Egg Products	1976
8-2	Spices and Herbs	1977
8-3	Baby Foods	1978
8-4	Fats and Oils	1979
8-5	Poultry Products	1979
8-6	Soups, Sauces, and Gravies	1980
8-7	Sausage and Luncheon Meats	1980
8-8	Breakfast Cereals	1982
8-9	Fruits and Fruit Juices	1982
8-10	Pork Products	1983
8-11	Vegetables and Vegetable Products	1984
8-12	Nut and Seed Products	1984

APPENDIX F

CORRELATION OF ORIGINAL SCALES WITH FACTORS FOR YOUNG WOMEN

Table 16. Correlation[a] of Original Scales with Factors for Young Women.[b]

Original Scale	Factor 1	2	3	4	5	6	7	8	9	10	11	12	13	14
Attitude Toward Food & Nutrition	.01	-.03	.10	.67*[d]	.63*	.08	-.06	.03	.01	.07	-.05	.07	.03	-.06
Nutrition Knowledge	-.12*	.06	-.03*	.16*	.22*	.23*	-.01	.09	.01	-.03	.01	.08	-.12	.19*
Self-Image	.69*	-.16	.64*	.06	.07*	.01	.01*	-.03	.08*	.06	.04	.04*	-.03	.08
Success Orientation	.08	.08	-.03	.06	.26*	-.06	.17*	.06	.32*	.04	.08	.63*	.16	-.05
Pleasure Orientation	.10	-.07	-.10	-.03	-.01*	.00*	.84*	.13	.10*	.09*	-.03*	-.05*	.02*	-.09*
Health Habits	.10	-.02*	.02	.07	.25*	.59*	-.02	.10	.26*	.39*	.45*	.17*	.24*	.31*
Body Size	-.11	.97*	.03	-.02	.01	.00*	-.08	-.07*	.01	.04	-.05	-.02	.01	-.09
Use of Salt	-.03	-.07	.05	.09	.02	.17*	.03	.95*	.01	-.02	-.04	.02	.00	-.02

[a] Pearson's r.

[b] N = 153.

[c] Factor names

1-Super Person
2-Body Size
3-Nice Person
4-Worry About Nutrition
5-Nutrition is Important
6-Seat Belts
7-Your Own Thing
8-Don't Use Salt
9-Caring About Others
10-Stress Management
11-Relax
12-Traditional
13-Careful
14-Time Management.

[d] * = $p \leq 0.05$.

APPENDIX G

COMPONENTS FOR PREDICTION OF NUTRIENT INTAKE AND FOOD CONSUMPTION VARIABLES FOR YOUNG WOMEN

Table 17. Components for Prediction of Nutrient Intake and Food Consumption Variables for Young Women.

Item Predicted	Constants ± SE			Components
Protein (gm)	+	11.43 ±	5.45	
	+	0.04 ±	0.00	Calories
	+	3.53 ±	1.22	Factor 10[a]
	-	0.75 ±	0.29	Knowledge
Calcium (mg)	+	487.22 ±	19.19	
	-	57.69 ±	21.04	Factor 1
	-	41.02 ±	20.54	Factor 2
Calcium (mg)	-	14.67 ±	36.85	
	+	0.34 ±	0.03	Calories
	-	36.73 ±	14.81	Factor 1
	+	40.11 ±	15.67	Factor 12
Iron (mg)	+	9.71 ±	0.29	
	-	0.82 ±	0.35	Factor 7
	+	0.76 ±	0.35	Factor 13
Iron (mg)	+	1.22 ±	0.59	
	+	0.01 ±	0.00	Calories
	+	0.55 ±	0.22	Factor 5
	-	0.49 ±	0.22	Factor 7
	+	0.45 ±	0.22	Factor 9
Ascorbic Acid (mg)	+	16.45 ±	14.82	
	-	11.50 ±	3.91	Factor 1
	+	2.79 ±	0.99	Knowledge
Ascorbic Acid (mg)	+	26.13 ±	17.36	
	+	0.03 ±	0.01	Calories
	-	0.97 ±	0.36	Factor 1
	+	7.88 ±	3.82	Factor 5
	+	2.39 ±	0.95	Knowledge
RDA Score	+	15.41 ±	0.34	
	-	0.84 ±	0.37	Factor 1
	+	0.93 ±	0.40	Factor 13
% Energy from Snacks	+	6.72 ±	5.01	
	-	2.52 ±	1.24	Factor 2
	-	3.06 ±	1.39	Factor 5
	+	0.69 ±	0.33	Knowledge

Table 17. Continued

Item Predicted	Constants ± SE	Components
Energy from Meals (Cal)	+ 1215.52 ± 34.61	
	- 89.37 ± 40.85	Factor 7
	+ 116.25 ± 40.89	Factor 13
Number of Meals	+ 7.07 ± 0.13	Factor 1
	- 0.43 ± 0.14	Factor 5
	+ 0.36 ± 0.15	Factor 12
	+ 0.39 ± 0.15	

[a]Factor Names

1-Super Person
2-Body Size
5-Nutrition is Important
7-Your Own Thing
9-Caring About Others
10-Stress Management
12-Traditional
13-Careful.

VITA

Diane Jean Palmer Libby has a Bachelor of Science degree in Home Economics Education and a Master of Science degree in Home Economics (Human Nutrition) from the University of Minnesota. She has taught secondary school home economics in Maine and adult courses in home economics in Wisconsin. She has taught college-level nutrition and food courses as a member of the faculty of the University of Minnesota and The University of Tennessee, Knoxville, Evening School. Diane Libby currently is a member of the faculty of the School of Home Economics, University of Wisconsin-Stevens Point.