

EATING HABITS OF OKLAHOMA STATE
UNIVERSITY SINGLE WOMEN
STUDENTS HOUSED IN
DORMITORIES VERSUS
OFF-CAMPUS
APARTMENTS

By

LAVERA FAY WOODY

Bachelor of Science

Southwest Missouri State University

Springfield, Missouri

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Thesis approved:

Helene F. Barbours

Thesis Adviser

Esther Winterfeldt

Elizabeth C. Hillier

D. W. Durham

Dean of the Graduate College

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CHAPTER I

INTRODUCTION

Significance of the Study

The modern college co-ed is both a product of her environment and a distinct individual. Her food habits have their roots in her culture, but are expressed in an age of change. Her nutritive needs are almost as high as, and in some cases higher than, those of her brothers--yet her caloric needs are substantially less (15). She attends a college in which she has freedoms of which her mother probably never dreamed when she attended a similar school. Many of today's co-eds keep their own hours in the dormitory and are permitted male visitors in their dormitory rooms (6). Also, instead of having one menu set on the table family style, as was the practice a few years ago, today's co-ed is faced with a myriad of choices from a cafeteria line (48). Many young people have the option following their freshman year of moving into off-campus housing if they desire to do so (14). The general trend is toward lower dormitory occupancy and more off-campus apartment living among college students (6).

All of these trends mean women in college must make many more decisions than did their parents when they were in

college. If modern students are away from home for the first time, they are faced with more decisions than ever before. How do all these freedoms effect the nutrient intake of the college women?

Numerous studies of eating practices of the teenage girl show extremely poor food habits (23,39,42). There is some evidence that the students living in dormitories may fare somewhat better nutritionally than those who plan their own food intake (20,21).

One factor affecting the eating patterns of young women is their desire to be thin. It is not surprising girls feel this way when every billboard and advertisement, as well as movie or television program, stars a super-thin "sex-appeal" girl. Our youth are bombarded with commercial presentations which carry the subtle message that every girl can look like their model. To look like that happy, vivacious, popular, young girl on the billboards or on the television, all a girl needs to do is to "drink Tab" or "eat Fritos" or "drink milk". Our culture produces little information expounding on the virtues of a varied, nutritious diet.

It has been shown that improved nutrition brings what is sometimes referred to as "bouyant health" (37). Better nutrition brings improved disease immunity and an improved psychological outlook as well (10,40). It is important, therefore, that these young college girls have the nutritional knowledge to meet their body needs.

Many of these young women will be both wives and mothers in the years immediately following their college career, if

not before. The nutritional health of not only her husband, but also of their children will depend on the mother's nutritional knowledge and practices. When the United States is ranked thirteenth in infant mortality and most infant deaths are from poorly nourished mothers, it is time for concern (41). Both the preconception nutritive state of the mother and her nutrition during pregnancy are factors in the health of her new-born infant (18). Nutritional practices of the college co-ed cause concern for her present health as well as for her future role as wife, mother and career woman.

Purpose of the Study

In this study a comparison was made of the food habits of single college women students at Oklahoma State University housed in campus dormitories and students living in off-campus apartments. A randomly chosen sample of women from each category were interviewed in relation to nutrition knowledge and food practices. A 24-hour recall of food eaten was also taken at the time of the interview.

The data obtained from the interviews were statistically analyzed. Information was obtained for intake of eight nutrients and calorie content according to analyses given in the United States Department of Agriculture Bulletin 72 (33). The data for the two groups was compared to the Recommended Dietary allowances for 1968, for women 18 to 22 years of age (15).

For each of the two groups the following information was obtained: Over or underweight, frequency of colds and fatigue, and taking of dietary supplements; amount of nutrition education, and concern about kind and variety of food eaten; number of meals skipped, and number of meals eaten at home; and major problems encountered in planning, purchasing, and preparing food.

The following assumptions are accepted in relation to this problem:

1. A random sample of single women students could be obtained, age 18 to 22 years, living in dormitories on campus and in off-campus apartments.
2. There will be a willingness to be interviewed by at least 50 subjects in each of the two categories.
3. An interview can be made which will give insight into the food intake and nutrition knowledge of the randomly sampled subjects.
4. The 24-hour dietary recall of interviewees can be analyzed for calories and eight nutrients by use of the computer.

Definition of Terms

✓ Apartment-In this study apartment is defined as off-campus, non-university connected housing where the student rents living quarters and does not live with his parents.

✓ Food habits - are defined by the Committee on Food Habits as, ". . .the way in which individuals or groups of individuals, in response to social and cultural

pressures, select, consume and utilize portions of the available food supply (9, p.13)".

Nutritional Status - means the state of health of the individual or group as conditioned by choice and amount of foods, or nutrients, eaten (31, p.5).

The following null hypotheses were made in connection with the study:

1. There is no difference between nutrient intakes of the women living in college dormitories and women living in apartments off-campus.
2. There is no difference in the number of meals skipped of the women living in college dormitories and women living in apartments off-campus.
3. The amount of nutrition education does not increase the food knowledge of nutrient intakes of the subjects in the two categories.
4. The amount of nutrition education increases the use of vitamin and mineral supplements used.

Based on findings of the study, recommendations will be made for ways to improve the nutritional status and food habits of the group found to be less well-nourished. Extension bulletins, commercial publications and newspaper and magazine sources of nutrition information will be identified. Food for Fitness, A Daily Food Guide, developed by the United States Department of Agriculture, will be made available to the subjects (17).

CHAPTER II

REVIEW OF LITERATURE

College life is changing rapidly. As students have more freedom to control their food intake, how does their knowledge about, and attitude toward, food and nutrition affect their actual food intake? There have been few studies of nutrient intake of college students living in off-campus apartments compared to those who live in dormitories. Most of the ones reported were done with dormitory students only.

Trends in College Housing

When the eighteen-year-old was given the right to vote in general elections beginning in 1972, a general trend was reflected. This trend of greater freedom and greater responsibility for the college-age population is observed in student housing (6,14). Most colleges still require some students to live in college housing, but many have problems keeping dormitories in full occupancy (6,43). In order to keep students living on campus, universities are liberalizing their dormitory and food service regulations to compete with the freedoms offered students by off-campus living and eating. Meanwhile soaring costs of dormitory food service and building maintenance are causing higher costs to students,

as well as to the university itself. The result is that many students are moving to apartment living and to more home preparation of food (6,14).

The university has traditionally been responsible for the welfare of its students. The legal term for this is "loco parentis". Bakken quotes from Black's Law Dictionary in explaining loco parentis as "In the place of a parent; instead of a parent; charged, factitiously, with a parent's rights, duties, and responsibilities" (2, p.234). The age at which this parental responsibility ends depends on the laws of the state. Other legal bases for university authority is the "... right of the governing board to make all rules and regulations necessary to the government of the college" and the "... contractual relationship between the college and the student" (2, p.234).

Bakken quotes a 1913 court ruling which helps to explain this:

In Gott Vs. Berea College, the court said: College authorities stand in loco parentis concerning the physical and moral welfare and mental training of pupils. For the purpose of this case, the school, its officers, and students are a legal entity as much so as any family, and, like a father may direct his children, those in charge of boarding schools are well within their rights and powers when they direct their students what to eat and where they may get it, where they may go and what forms of amusement are forbidden (2, p.234).

In both Louisiana and Iowa this year the right of the University to force unmarried undergraduates to live in on-campus housing is being challenged in the courts (2).

The trend toward more off-campus apartment living among students is also present at Oklahoma State University. In 1969 this university operated 16 residence halls with a capacity for 7200 students. At present 13 residence halls are in operation with 6300 capacity. There was also an increase in apartment living during this time. There were approximately 900 new apartment units planned for construction in Stillwater alone in 1971.

University housing has also become more liberal. In 1969 undergraduate, unmarried women under 23 years of age were required to live in university housing. Only junior and senior women were allowed to live in sorority houses, if they chose. All women students living in dormitories had "hours". In the fall of 1970 both junior and senior women and those over 21 years were allowed to live off campus. The fall of 1971 saw an end to housing regulations that applied to women only. At this time freshmen and sophomore men and women were required to live on campus. Students with parental permission had no "hours" in the dormitories. At present only freshmen men and women are required to live on campus and, with parental permission, have no "hours" (36).

The dormitory occupancy at Oklahoma State University was down 13 per cent in the fall of 1972 as compared to one year earlier (11), and housing authorities are trying such things as "liberalized visitation" and "expanded hours of meal service" to regain the dormitory residents. Also a choice of two meal plans are made available to students at

present. The "15 meal plan" provides no meals on weekends and costs less than the traditional "20 meal plan".

University Meal Service

The nutrient content of university dormitory meals has been studied from two aspects. The possible, or potential, meal content and the actual meal content. The potential nutrient content is based on the records of storeroom issues of type and amount of food. This data is adjusted for plate waste and preparation waste and calculated for nutrient content. The total nutrient content is divided by number of students served. The actual meal content is based on the meals chosen by students.

One study conducted at South Dakota State University covered both fall and spring semesters and used both methods of determining meal content. It was determined in the first part of the study that:

Gross calories and all nutrients calculated, except iron, . . . exceeded the 1968 Recommended Dietary Allowances by sufficient margins so that, allowing for kitchen and plate waste and cooking losses, students should have been able, by making appropriate choices, to meet the Recommended Dietary Allowances (20, p.34).

The dairy products provided one-third of the protein and 26 per cent of the calories, as well as 78 per cent of the calcium and 59 per cent of the riboflavin, more than 30 per cent of the fat and 22 per cent of the Vitamin A. The meat group provided 38 per cent of the protein and 21 per cent of the calories. This group also contributed 36 per cent of the fat, 35 per cent of the iron and 45 per cent of

the niacin in the study. The bread and flour used was enriched and this source provided 31 per cent of the thiamin, 27 per cent of the niacin and 14 per cent of the riboflavin. The bread group also provided 39 per cent of the carbohydrate, 23 per cent of the calories and 31 per cent of the iron. The vegetable group provided 57 per cent of the ascorbic acid, 46 per cent of the Vitamin A, 22 per cent of the iron, 20 per cent of the niacin and 15 per cent of the thiamin. Vegetables also provided 17 per cent of the carbohydrate. Fruits provided 27 per cent of the ascorbic acid and 13 per cent of the carbohydrate. There was a slight variation in some of these figures in the two seasons surveyed, but they have been averaged here to give one figure (20).

In the second part of the study discussed above, the foods actually served to students were studied. Again the figures for the two seasons are averaged. The men drank an average of 4.4 glasses of milk per day while the women averaged only 2.4 glasses. Of the men sampled, 91 per cent drank some milk, but only 78 per cent of the women sampled drank some milk. Six per cent of the women drank skim milk while the use of skim milk by the men was almost none. In this study it was concluded that the meals sampled:

. . . met or exceeded the respective Recommended Dietary Allowances for young adults, except that the iron content in the meals selected by the women was about 10 mg. Men consumed approximately 1.5 times as many calories as women, and therefore obtained more of all nutrients (21, p.38).

Due to the fact that men tended to drink more milk, they had a higher calcium and phosphorus figure per 1,000 calories than the women. The women had a slightly higher ratio of some other nutrients per 1,000 calories.

Factors Affecting Food Intake of College Women

Concern for Appearance

One of the major concerns of coeds is their weight. In one study of 40 women living in college dormitories, when asked to rate their body size compared to silhouettes for weight, 52 per cent considered themselves overweight. Height and weight were taken at the time of the interview and compared to the Metropolitan Life Insurance Company table of desirable weights (22). The subjects were thus classified with 40 per cent of the girls classed as 10 per cent or more over their desirable weight, 28 per cent as average, and 28 per cent as underweight. More than half of the girls chose the thin silhouette as their ideal and only three of the girls actually thought themselves underweight (46).

A report of three studies of adults in the 16-year period from 1950 to 1966 showed over 40 per cent of the women in each study thought themselves overweight. In each of the studies, however, only 14 per cent of the women were doing something to lose weight (12). A 1966 study of the attitudes of teen-agers toward body conformation showed that, even as early as the ninth grade, 50 per cent of the boys and 65 per cent of the girls said they were doing

"something" about their weight. When questioned about what, "change in diet" was the leading response (27). The main reason for omitting one or more food groups in a study of teen-age girls was a fear of gaining weight (23).


Meal Skipping

In the previously mentioned study (46) of coeds living in a dormitory, it was found that 70 per cent of the overweight and only 10 per cent of both the average and under weight groups girls missed breakfast. Lunch was skipped by 10 per cent of both the average and under weight groups and none of the overweight. Ten per cent of both the average and overweight groups missed dinner but none of the underweight group did (46).

Good Health

Maintaining good health is a goal of most people (44). It could then be assumed that with an increase in knowledge about maintaining proper nutritional health, there would be a related increase in the meeting of nutrient requirements. In a 1956 study of homemakers in Rochester and Syracuse, New York, Young, Berresford and Freer found this to be the case (51). In this study less than one-third of the homemakers with low nutrition knowledge used all the basic food groups in daily menus. Slightly less than half of the homemakers with moderate nutrition knowledge used all the basic food groups daily. Less than one-fourth of the homemakers had heard of the "Basic 7", which was in use at the time, and could name any of its food groups.

A study in 1970 of 40 coeds living in dormitories revealed nutrition information was low among almost all the women. Only two could list the four food groups and knew the suggested number of servings of each group. A 24-hour recall taken at the time of the interview showed that the overweight group, as a whole, limited bread and cereals and one-fourth of this group stated they never drank milk. The food of the average weight group did not meet even 75 per cent of the "Basic Four" food groups. Ten per cent of the entire group studied did not drink milk (46).



Results of Surveys of College Food Habits

In a 1966-67 study of food preferences among 50,000 college students across the nation, it was concluded that the foods providing a high amount of vitamin A and iron were the very ones least liked by the students. Fruit containing vitamin C was well liked, but the vegetable sources of vitamin C were not popular. Milk products were well liked, but other foods, such as certain vegetables containing moderate amounts of calcium, were less well liked. The iron-containing foods followed the same pattern. Liver, which provided one-half the daily iron allowance for women in a single serving, rated 59 in a field of 63 entree items.

The iron-containing vegetables were also rated among the least liked (13).

In a 1964 study of the nutrient intake of students on the Oklahoma State University campus, a comparison was made

of two-day food records of students enrolled in the first nutrition course. At that time only slight differences were found in the nutrient intakes of women housed in dormitories, sororities and off-campus. The on campus students in this study seemed to fare best, with the women living in apartments second. The sororities ranked last, but still met two-thirds of the recommended allowances, 1964, for most nutrients. Iron was approximately 65 per cent of the recommended allowance for women in all three groups. Ascorbic acid was 67 per cent of the recommended allowances for the women eating in university cafeterias while women eating at their apartment averaged 87 per cent of the recommended allowance for ascorbic acid. The other nutrients studied showed much less variation (28).

Changing American Food Patterns

The tradition of three meals a day with the family all sitting down at one time began with the first settlers in this country. It was carried on without much change until the 1950's. Increasing affluence, leisure time, and more women working outside the home are some of the factors which, combined with advancements in food processing and packaging, changed the traditional family food patterns (8).

Today the food market presents foods with many "services" built in. Most foods are available in any one of many states of preparation requiring less time and equipment to arrive at a finished product (8). Between 1955

and 1965 the use of convenience foods increased about 30 per cent in households in the United States (5).

At the same time there has been a growth in the number of eating places away from the home. Fast service and limited menus are a characteristic of a great many of these eating places. It is also possible to have fast service of food delivered to the home (8).

Food Additives and Health

The use of prepared or partially-prepared items has increased the use of preservatives and other chemical additives. These additives increase the shelf-life and help to hold foods in the processed state acceptably. Sensationalists have challenged the safety of these food additives. This has given rise to the "health" food or "natural" food industry. These foods are grown without the addition of chemical fertilizers and insecticides and preserved with the limited addition of preservatives. Federal regulations, however, are vague or nonexistent as far as these foods are concerned. Although exaggerated claims made for such foods may appeal to the ecology-minded students, no reliable evidence has shown that food additives are being consumed at the "danger level" (32, 50).

Cost of Food

The cost of food rose more than the cost of non-food items in 1972 (35). In March of 1972 the United States Department of Agriculture's estimate of the cost of food for

a family of four living in the West and on a moderate budget was \$40.00 per month (34). In March of 1973 the same family on the same food plan would pay \$41.90 per month. Meat accounted for most of the nearly five per cent increase. The prediction for 1973 is six per cent increase in food cost (35).

Dietary Study Methods

Burke outlined several methods used in determining nutritional status. She listed the appraisal of clinical symptoms of existing deficiencies, laboratory work to determine internal environment, and the evaluation of food habits. The combination of these three methods yield the best evaluation of nutritional status (7).

Hoobler states:

Many dietary studies are made without accompanying biochemical, clinical, and anthropometric measurements. These studies have a definite value in teaching nutrient values and desirable nutrient intakes, and they may provide clues toward possible dietary lacks or excesses that should be checked out by other measures. However, they are not measures of nutritional status (25, p.3).

→ The three most commonly used methods of obtaining dietary information are the seven-day diet record, the interview aimed at revealing usual food patterns, and the 24-hour recall. The seven-day record is a listing kept by the subject of food eaten for each of seven days. This gives a picture of food eaten in the period of a week and allows for daily food variation due to differing activities on different days of the week. It does, however, require a highly

cooperative and somewhat skilled subject (52). The foods listed are then compared to some type of food guide or are calculated as to nutrient content and compared to the Recommended Dietary Allowances (15).

→ The interview of "usual" food practices is often used along with other methods, or by itself. It consists of questions about what foods are usually, or "ordinarily" eaten (52). This is often cross checked with such questions as "How often do you buy this item?" The author has found this method of cross checking most helpful in working with families whose entire month's income is received in one lump sum. These families often try to buy enough staples to last the whole month and are more aware of how much of each item they purchase than how often it appears on the meal plan.

→ Perhaps the simplest method is the 24-hour recall. In this method the subject is asked to remember what foods he has eaten in the past 24 hours. The interviewer makes a note of the food and the amount eaten and obtains any necessary clarification as to the exact type of food. The data is then compared to a food guide or is calculated as to the nutrient content and compared to the Recommended Dietary Allowances. This method of obtaining dietary information takes less time and requires less cooperation and skill on the part of the subjects (54).

→ The main factors in determining the method of dietary study to be used are purposes of the study (25). The study

often indicates the amount of accuracy needed, and the time available limits the questions that can be asked, as well as the number of subjects that can be used.

In a comparison of the diet history and the seven-day food record, one group of researchers found somewhat similar results for both methods for calories, vitamin A and ascorbic acid. There were significant variations in results for protein, calcium, iron, thiamin, riboflavin, and niacin. This study was done on several different population groups ranging from gradeschool children to adults. There was variation between the uniformity of results of the two methods for the different groups with the diet history giving higher results (52). ←

A similar study was conducted by some of the same researchers to compare results of the 24-hour recall, the seven-day diet record and the diet history review. They found that the 24-hour recall did not give the same results for the individual as the diet history or the seven-day record. The seven-day record and the 24-hour recall seemed to give more closely related results than did the diet history and the 24-hour recall. When results were compared for group means, the diet history gave higher means than the other methods for some of the nutrients and lower means for others. For six of the nutrients studied, however, the results were not significantly different. The seven-day food record and the 24-hour recall give similar results (54).

The Recommended Dietary Allowances

No matter which method is used to gain a list of exact foods or a list of general categories of food consumed, the next step is to compare this information to a guide of what foods are needed. This guide can be either in terms of the nutrient needs for the subject involved or in terms of the general food groups needed.

The most common guide of nutrient needs used in this country is the Recommended Dietary Allowances. These are set up by the Food and Nutrition Board, National Research Council, the National Academy of Sciences and revised about every five years. According to their 1968 publication:

. . . the allowances for specific nutrients are designed for maintenance of good nutrition of practically all healthy people in the United States (30, p.114).

The Recommended Dietary Allowances are simply lists of tables with the nutrient allowances listed for individuals according to sex and age. Any diet meeting two-thirds of the Recommended Dietary Allowances is usually considered adequate although a diet that meets 100 per cent of the recommended amount allows for nutrient stores to be built in reserve for use in times of body stress such as illness or pregnancy (14).

Daily Food Guide

Another food guide that is often used is Food for Fitness: A Daily Food Guide (17) commonly called the "Basic Four". This is a simplification of actual nutrient needs into suggested groups of foods that will meet these needs. It

loses some of the accuracy of figuring the actual nutrient content of the foods and comparison to the nutrient allowances. However, it is much more widely used in the nutrition field because it takes only a few minutes to compare the dietary information to the food group recommendations (24).

Interview Techniques

Bingham, Moore and Gustad define the interview as "a conversation to a definite purpose other than satisfaction in the conversation itself" (3, p.3). Included in the "exchange of meaning" are gestures and expression as well as the spoken word.

The two basic objectives of interviewing as stated by Gordon are discovery and measurement. "Discovery" is finding information on the qualities of the problem while "measurement" deals more with the quantities or extent of the problem. The first type of interview is usually more successful using questions that may have any variety of answers. This open-ended type of question allows the subject to be more individualistic in his answer. The interview to measure, on the other hand, is often best highly structured, or scheduled, using questions with a limited variety of expected answers. Gordon states "the scheduled interview with high topic control, is more efficient and effective in obtaining uniform coverage, precision, and reliability of measurement" (19, p.48).

Young further divides dietary interviews into clinic and field survey interviews. The clinic interview is done in an out-of-the-home setting, often in connection with other professional services such as medical and dental treatment. These interviews are often completed on a series of visits to the "clinic". They are concerned with the meaning of food to that one person and the food habits by which those meanings are expressed. The open-ended questions and "searching" interview are used here. The data is used only by the person taking the information and only to help in the counseling of that one patient. The field interview, however, is usually administered in the home of the subject. This type of interview is usually conducted to discover the kind and amount of food used or to measure knowledge and attitudes about food. The interview is more often of the structured type with a constructed questionnaire used to facilitate the interview. The data may be used in planning nutrition education programs for a population group rather than to help the one individual (54).

The qualities needed in the interviewers seem to be different according to the type of interview. The first must be highly qualified to recognize the problems of the patient while the field interviewer must be more friendly and warm. In either case the interviewer must be able to put the subject at ease (54). Most important is that the interviewer be truly interested in the interview. Boredom

and an apologetic attitude on the part of the interviewer are expressed often nonverbally, or in tone of voice. All these factors affect the free flow of information. The subject matter itself may act as an inhibitor in the interview, if for some reason it is threatening to the interviewee (19).

Babcock states that food may have many cultural and psychological meanings woven into its use. Besides being used in "racial and religious customs", food is also associated with "expression of economic status" (1).

CHAPTER III

METHOD OF PROCEDURE

A sample of 100 names was drawn at random from each of two groups living in off-campus apartments and living in campus dormitories. Files of the Student Affairs Office, containing the names of the entire student body in alphabetical order were made available to the researcher. The meal ticket files of the Office of Single Student Housing were also used to identify women living in dormitories. All the subjects were in the age range of 18 to 22 years.

Drawing the Sample

Women Living in Off-Campus Apartments

The files of the Student Affairs Office contained the student names and addresses, both present address and permanent address. The sex and marital status of the student were also contained in these files. The names were arranged on four microfilm cards in numbered sections containing 26 names each. A random numbers table was used to decide which 100 sections were to be used. The names of single women students living off campus were taken from these squares. If several women meeting the criteria were found, a random numbers table was used to choose which ones

would be used. If no student of the 26 in the section met the criteria, then a name was drawn from the section immediately following.

A list was made of the addresses of the sorority houses and women living at those addresses were eliminated. Women living at their permanent addresses were not used in order to omit students living with their parents. Unfortunately, this seemed to eliminate any divorced women students as they tended to list their present address as their permanent address.

Women Living in Campus Dormitories

The meal ticket files of the Single Student Housing were computer printouts contained in a three-ring notebook. One hundred random numbers were chosen from a random numbers table and arranged in ascending order. Then names in the files were counted and the sample drawn. The files gave name, dormitory and room number and the meal plan they were on, if any. Telephone numbers were obtained from the Stillwater Telephone Directory.

Developing the Interview

The age group in the study was chosen to correspond with the reference woman of the Recommended Dietary Allowances of 1968. This woman is 22 years old and weighs 128 pounds. She lives in a temperate climate with an average temperature of 70 degrees and her activity is light,

neither sedentary or heavy (15). It was felt this corresponds with the activity level of most college students.

The questions used in the interview were chosen for this age group. See Appendix A. The interviewer drew upon personal experience as an off-campus student and talks with other students to determine some of the problem areas of this group and their food habits. Ideas from literature on the subject and suggestions of advisors and instructors were incorporated to put together the questionnaire. A statistician was consulted to assure that the interview data could be easily coded and computer analyzed.

Questions in the interview were divided into three sections. The first was in relation to personal data involved in food preparation. Such items as number of roommates, if any, and estimated cost of food were included here. The second section was concerned with the food knowledge of the subject. Questions were related to knowledge of the "Basic Four" and certain nutrients contained in foods. The third section asked for any specific food-related problems the subjects were experiencing. A 24-hour recall of food intake was taken at the end of the interview.

Pretesting the Interview

The interview was pretested with twelve single women students, six of whom were living in campus dormitories and six of whom lived in off-campus apartments. Based on these interviews several revisions were made to ensure greater clarity.

Collecting the Data

The subjects were contacted by telephone when possible. Each subject was contacted twice on two different days of the week. Some could not be reached either time and were eliminated from the study. Interviews extended into the second semester of the school year and some subjects both on campus and off, did not return to school. None of the files available contained the ages of the subjects. As a result some were rejected when contacted by the researcher because of age. Because of this it was necessary to draw an additional 45 names from the files of those living off campus.

It was found that the subjects were more likely to be at home, or in their dormitory room, in the evening. Most of the subjects living in the dormitories agreed to meet with the researcher at their dormitory room during the day. Those subjects living off campus, however, were more available in the evening. The researcher met most of the subjects either at their dormitory rooms or their homes. A few subjects living in apartments preferred to meet the researcher on-campus during the day. The library study lounge was found to be the most convenient location for these interviews.

Copies of recipe booklets from the Peanut Commission and Campbell's Soup Company were given to each subject. This served to help put the subjects at ease before the interview and to get them thinking about food.

Such questions as to weight of the subject or living arrangements were anticipated to cause anxiety in some women. The interview was structured in such a way as to cause the least personal threat to the subject and the researcher was careful to be non-evaluative. Interviews were coded by number to keep them anonymous.

Coding the Interview

To avoid bias in the evaluation of the data, each subject was given a code number and the name and local addresses was removed from the questionnaire and filed. The code number was used to find the name and address of the subjects at the end of the study. The computer print-out of their 24-hour recall of food intake was returned to each subject along with an explanation of the adequacy of food eaten.

The weight of the subjects was coded as 10 per cent, 11 to 15 per cent, 16 to 20 per cent or 21 or more per cent above or below desirable weight. The desirable weight for this purpose was taken as the center of the range in each category of the Metropolitan Life Insurance Company tables of desirable weight. For each year under age 25, one pound was subtracted from the desirable weight of the subject.

Analysis of 24-hour Food Intake

Data from each subject was run on two separate programs. The first program compared the 24-hour recall with the Recommended Daily Dietary Allowances for the 18 to 22 year old women. The results of this analysis were given in

percentages of the recommended calories, protein, calcium, iron, vitamin A, thiamin, riboflavin, niacin and ascorbic acid. The present weight of the subjects was used in determining the needed calories. A standard 16 hours of light activity and eight hours sleep were used for computation of energy needs of all the subjects. No attempt was made in this study to determine the level of activity of individuals. The foods listed in the 24-hour recalls were coded from the numbers and amounts given in the United States Department of Agriculture Bulletin 72 (33).

Chi Square of Food Related Data: Chi square analyses were run on the data in the second computer program.

Blalock states that a null-hypothesis may be tested by the use of the chi square formula:

$$\chi^2 = \sum \frac{(f_o - f_e)^2}{f_e}$$

where f_o = the observed number in a given category

f_e = the expected number in that category

Σ = directs us to sum this ratio over all categories

(k)

The closer the agreement of the observed and the expected frequencies in each of the categories, the smaller is the chi square. This small chi square figure means the null hypothesis is less likely to be rejected (4).

CHAPTER IV

RESULTS AND DISCUSSION

Nutrient Intake of the Two Groups

Forty-nine students living in campus dormitories and forty-seven in off-campus housing were interviewed. No significant difference in nutrient intake between the two groups was found upon the analysis of the 24-hour recalls. Table I shows the mean nutrient intake of the two groups of students in per cent of the Recommended Dietary Allowances, 1968. When asked if the day of interview was an "average" day, approximately 75 per cent said it was. When asked if they usually ate more or less, the responses were fairly evenly divided. Some girls stated they usually ate the same amount but different things.

TABLE I

MEAN NUTRIENT INTAKE OF THE TWO GROUPS OF SUBJECTS
IN PER CENT OF RECOMMENDED
DIETARY ALLOWANCES, 1968

	On Campus %	Off Campus %
Calories	80	70
Protein	120	126
Calcium	90	76
Iron	48	49
Vitamin A	108	85
Thiamin	75	70
Riboflavin	94	78
Niacin	94	88
Ascorbic Acid	146	110

The mean for both groups showed, with the exception of iron, the subjects averaged well above two-thirds of the Recommended Dietary Allowances. It is noted that there is a definitely higher mean intake for all nutrients except protein, iron and thiamin in the "on-campus" group.

The calorie and nutrient intake of each subject in the "on-campus" and "off-campus" categories were scored as excellent, good, fair or poor. These scores are presented in Table II. More "on-campus" subjects scored "excellent" in calories and all nutrients with the exception of iron. More subjects in the "off-campus" group scored "good" in protein, iron, thiamin, and niacin. In the "off-campus" group a larger number of subjects scored "poor" on calories and nutrients except iron. Iron was only slightly different in all four scores for both the "on- and off- campus" groups.

TABLE II

NUMBER OF SUBJECTS IN EACH CATEGORY AND THEIR DIET SCORES

Nutrient	*Excellent	Good	Fair	Poor
On Campus				
Calories	19	12	8	10
Protein	42	4	3	0
Calcium	25	8	5	11
Iron	1	3	18	27
Vitamin A	25	2	4	18
Thiamin	18	8	12	11
Riboflavin	23	12	6	8
Niacin	26	8	11	4
Ascorbic Acid	26	5	5	13
Off Campus				
Calories	11	12	13	11
Protein	36	6	0	5
Calcium	21	7	4	15
Iron	2	6	13	26
Vitamin A	19	2	3	23
Thiamin	14	12	7	14
Riboflavin	18	9	8	12
Niacin	21	12	6	8
Ascorbic Acid	20	3	6	18

*Excellent - 85 per cent and above; Good - 84 to 67 per cent; Fair - 66 to 50 per cent; and Poor - 49 to 0 per cent.

Meals Skipped

The number of meals skipped by each group is shown in Table III. There was a significant difference at the .0014 level between the two groups in the number of breakfasts skipped. Approximately three times as many "off-campus" subjects missed no breakfasts as did the "on-campus" subjects. More than two-thirds of all the subjects skipped some breakfasts each week. Some of the girls living in the dormitory who were on the 15 meal plan ate an early combined lunch--late breakfast on weekends. Breakfast is included for the weekdays in the 15 meal plan and on every day on the 20 meal plan. There was no significant difference in meals skipped by the two groups for lunch and dinner. However, the "off-campus" group missed more lunches than did the "on-campus" subjects. Very few in either group missed dinner.

TABLE III

NUMBER OF SUBJECTS SKIPPING MEALS PER WEEK

	Number of Meals Skipped per Week					
	Daily	5 or More	4	3	2 or More	None
<u>Breakfast:</u>						
On Campus	12	10	7	6	7	17
Off Campus	5	13	1	2	3	23
<u>Lunch:</u>						
On Campus	0	4	1	1	8	35
Off Campus	1	6	1	7	4	27
<u>Dinner:</u>						
On Campus	0	0	2	1	8	38
Off Campus	0	0	3	1	3	40

Nutrition Knowledge

Thirty-eight girls had some home economics in junior high school. However, junior high school home economics did not make a significant difference in the amount of food knowledge of these subjects. The effect of junior high school nutrition training may have been obscured by a large number of subjects who had high school or college nutrition training without having had junior high home economics.

Subjects who had high school nutrition training scored higher than those who did not on food knowledge. This was significant at the .0033 level. See Table VI in Appendix C for chi square analysis. Hours of college credit in food and nutrition made a significant difference in the amount of food knowledge of these subjects at a level of significance of .0001 as determined by chi square analysis. See Table VIII in Appendix C. Nutrition training in 4-H club work significantly improved the girls' food knowledge at the .0146 level. See Table VIII in Appendix C for chi square analysis. Eleven girls had some 4-H training, with one girl having nine years.

The amount of nutrition education did not increase the food knowledge of nutrient intakes of subjects in the two categories. Based on the chi-square analysis of calorie and nutrient intakes, as the amount of nutrition education increased neither the "on-campus" nor the "off-campus" subjects significantly improved their food intakes.

Use of Vitamin and Mineral Supplements

Over one-third of the subjects took vitamins. Table IV shows the number of subjects taking each type of diet supplement. No relationship was found between the amount and kind of nutrition knowledge as compared to use of vitamin and mineral supplements. Two of the girls taking vitamin A supplements had it prescribed by a doctor for their complexion problems.

TABLE IV

USE OF VITAMIN AND MINERAL SUPPLEMENTS

Supplement	On Campus No.	Off Campus No.
Multiple Vitamins	11	12
Iron	5	8
Calcium	1	1
Vitamin C	8	3
Vitamin A	1	3

Use of Health Foods

Only two subjects stated they used "health foods". One used a "natural" grain cereal and omitted white flour. The other used sunflower seeds, raw sugar, brown rice and she tried to find foods without preservatives.

Problems in Food Preparation

On-campus responses to what the main problems with their food were, included comments like "too starchy" and "too greasy" most often. Nonspecific comments like "don't like the taste" or "don't like the variety" were next. One girl called the food too "fattening" and two said it was "too high in calories". Two mentioned the difficulty of trying to fix weekend meals in the room. Three girls complained that the food, the meat in particular, was "unidentifiable" or was "mystery meat". One girl complained about cold food, over-cooked "mushy" vegetables and lack of color in the food. There seemed to be some variation in the different dormitories as to the acceptance of the food, but no data were collected on this. It must be noted that a higher number of dormitory girls than off-campus girls reported they had no problems with the food.

The leading response to this question by the students living in apartments was "cost". Twenty-one girls stated cost as one of their main problems. "Time" was the second main problem. Twenty subjects gave time and eight gave "variety" as one of their problems. Only one subject listed "nutrition" as a main concern in food planning, purchasing, and preparation. Three listed no problems. Of the responses not on the interview schedule, "cooking for one" was the leading problem with problems of "pleasing the likes of all those eating" as second. Two girls listed problems of "organization" It was observed that in those houses in

which each roommate took turns in preparing meals, fewer problems were encountered.

Knowledge of Basic Four Food Groups

There appeared to be a lack of knowledge as to the recommended servings of each food group. See Table V. The meat group received the largest number of correct responses with bread and cereal receiving the fewest correct responses. Most of the girls underestimated the need for the bread and cereal group while overestimating the need for dairy products. The vegetable and fruit groups were also underestimated.

TABLE V

RESPONSES OF 96 SUBJECTS IN REGARD TO AMOUNTS
NEEDED DAILY OF BASIC FOOD GROUPS

	Number of Servings						
	$\frac{0}{\text{NO.}}$	$\frac{1}{\text{NO.}}$	$\frac{2}{\text{NO.}}$	$\frac{3}{\text{NO.}}$	$\frac{4}{\text{NO.}}$	$\frac{5}{\text{NO.}}$	$\frac{6}{\text{NO.}}$
Fruit and Vegetables	0	4	33	27	21*	4	2
Milk	1	16	31*	30	13	0	0
Bread and Cereal	0	28	34	13	11*	0	0
Meat	0	8	54*	24	6	0	0

*subjects giving the correct number of servings needed per day

Use of Food Guide or Special Diet

When asked if they used a daily food guide in planning their meals or in making their cafeteria choices only 10 subjects said they used the Basic Four. Six said they tried to include some combination of meat, vegetables, bread and salad. One girl living in an apartment was a "Weight Watcher". Six girls stated they were doing things like excluding desserts, cutting down on carbohydrates and fat, or watching calories for their weight. One girl stated she believed she would "get fat" by following the Basic Four.

The responses to the question as to whether any were on a special diet were similar statements of cutting carbohydrates, watching calories, or simply eating less to lose weight. One was on a starvation diet and one was trying to gain weight. No medically prescribed diets were reported.

Weight Range of 96 Subjects

Since no facilities were available for accurate weight measurement, weight as reported by the subjects had to serve as a base for the nutrient requirements. It is possible some of the girls were reporting their desirable weight. Figure 1 shows the weight as reported by the subjects. There was a higher number of the on-campus subjects in the desirable plus or minus 5 per cent category. Although the acceptable range is usually considered to include 10 per cent above or below the desirable, there may be a tendency to gain weight after 18 years of age.

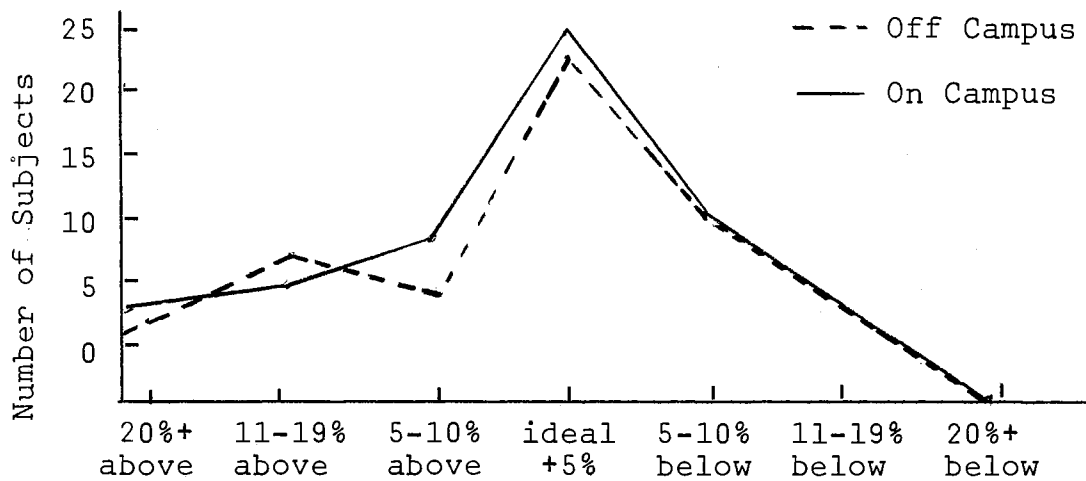


Figure 1. Weight Range of the Subjects

Food from Home

The items brought from the family home included mainly fruit, baked goods, soup and crackers for the dormitory residents. Fifteen subjects on campus and only seven off-campus reported that they often brought food from their family home.

Number of Roommates

Number of roommates for the off-campus girls ranged from none to three. Only four girls lived alone, 19 had one roommate, 17 listed two roommates and seven had three. No check was made of any correlation between number of roommates and nutrient intakes. A further study might show such a correlation. All four of the girls living alone mentioned difficulty in cooking for one person as a problem in meal preparation.

Results of Study Returned to Interviewees

At the conclusion of the study the following materials were returned to the participating students: the calorie and nutrient content of the 24-hour recall of food; a copy of Food for Fitness - A Daily Food Guide; the number of subjects in each category who did not eat two-thirds of the Recommended Dietary Allowances, 1968 per day; and the number of subjects in each category who did eat 100 per cent or more of these allowances daily. See Appendix B for letter of explanation sent to each subject and the adequacy of the 24-hour intakes of food for each of the two categories of students.

CHAPTER V

SUMMARY AND CONCLUSIONS

A randomly chosen group of single women students, 49 living in campus dormitories and 47 living in off-campus apartments, were interviewed in relation to their food practices and nutrition knowledge. A 24-hour recall of food eaten was taken for each subject in the two groups. By use of the computer, these 24-hour recall records were analyzed for calories, protein, calcium, iron, vitamin A, thiamin, riboflavin, niacin and ascorbic acid.

When compared to the Recommended Dietary Allowances, 1968 it was determined that there was no significant differences in calorie and nutrient intake of these two groups of college women. Of the nutrients studied, iron was lowest for both groups.

Using a chi-square analysis there was a significant difference at the .0014 level between the two groups in the number of breakfasts skipped. Approximately three times as many "off-campus" subjects missed no breakfasts as did the "on-campus" subjects. There was no significant difference in meals skipped by the two groups for lunch and dinner.

Subjects who had high school nutrition training scored higher than those who did not on food knowledge questions

in the interview. Chi-square analysis indicated this was significant at the .0033 level. Hours of college credit in food and nutrition courses made a significant difference in the amount of food knowledge of these subjects at a .0001 level as determined by chi-square analysis. Nutrition training in 4-H club work significantly improved the subjects food knowledge at the .0146 level.

Based on the chi-square analysis of calorie and nutrient intakes, as the amount of nutrition education increased neither the "on-campus" nor the "off-campus" subjects significantly improved their food intakes. No relationship was found between either place of residence or nutrition knowledge and the taking of vitamin or mineral supplements. Approximately one-third of the subjects took supplements. Multiple vitamins were the most common type used.

The main problem encountered in food preparation by the "off-campus" residents was food cost. The dormitory residents complained more about the seasoning of foods and the limited variety served than about the cost.

Recommendations for Further Study

Further study is needed of students living on and off campus to determine what media would reach them best with food and nutrition information. Food buying information needs to be presented which would help off-campus students to cut food costs. Help in knowing which foods are high in iron and how best to prepare them might improve iron intake for women. The subjects need to be encouraged to omit

sugars and sweets, not bread and cereal, to avoid gaining weight. They also need to be encouraged to increase the use of the vegetable and fruit group in their daily food intakes.

Further study to test the relationship, if any, of living with roommates who cook and eat together versus living and eating alone and their nutrient intake is indicated. Each of the four subjects in this study who had no roommates stated cooking for one is a problem.

The investigator suggests that completion of all interviews during one session of the school year is highly desirable as many students do not return, or change their addresses. It is also suggested that all interviews be conducted in a central office rather than attempting to contact subjects in their place of residence.

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Nutrition Information Interview --

Dormitory Versus Apartment Dwellers

Date _____
Code No. _____

1. Age: _____
2. Height: _____
3. Weight: _____
4. Frame: Small _____ Medium _____ Large _____
5. Weight range: Over _____ Under _____ Normal _____
6. Classification _____
7. How many courses in human nutrition have you had in High School? _____
8. How many college credits do you have in human nutrition? _____
9. How many years of foods training in 4-H? _____
10. How many years of experience as a homemaker? _____
11. How many years of other types of food-related experiences? _____
12. Is your family background: Rural _____ Urban _____
13. Do you live in an apartment? _____ Dormitory? _____
14. If you live in an apartment, how many people share it? _____
15. Do you plan, purchase and prepare all of your own meals? Yes _____ No _____
16. Do you plan, purchase and prepare most of your meals together? Yes _____ No _____
17. Do you budget your food money? Yes _____ No _____
18. How much money do you allow for food per person per week?

1. \$5.00 or less _____	4. \$9.01 to \$12.00 _____
2. \$5.01 to \$7.00 _____	5. \$12.01 to \$15.00 _____
3. \$7.01 to \$9.00 _____	6. \$15.01 or above _____

19. Is food brought from your family home? Yes ___ No ___
20. If so, estimate how much money this food saves you per week? _____
21. What kind of food do you bring from home frequently?
 Meat _____ 22. Milk _____ 23. Eggs _____ 24. Fruit _____
 25. Vegetables _____ 26. Baked Goods _____
 27. Other _____

What meals do you regularly eat at your apartment or at the dormitory?

28. Breakfast _____
29. Lunch _____
30. Dinner _____
31. Snacks _____

How often do you eat the following?

	Never	2 or less per week	3 times per week	4 times per week	5 times per week	Daily
32. Breakfast						
33. Lunch						
34. Dinner						
35. Snacks						

36. Are you on a special diet? Yes ___ No ___
37. If so, what kind? _____
38. Do you take vitamin or mineral tablets regularly?
 Yes ___ No ___
39. If so, what kind? Multiple Vitamin? _____
 40. Iron _____ 41. Calcium _____ 42. Vitamin C _____
 43. Other _____
44. Do you believe what you eat really makes a difference
 in how you feel and look? Yes ___ No ___
45. Do you eat any special health foods? Yes ___ No ___
 If so, what kind?
 46. Wheat germ _____ 47. Yogurt _____
 48. Organic foods _____ If so, what kind? _____
 49. Brewer's yeast _____ 50. Others _____

51. Do you follow a daily food guide in planning your meals? Yes _____ No _____
52. If yes, what guide? USDA _____ Other _____ None _____
53. How much of your daily food intake is eaten as snacks?
None _____ 1/8 or less _____ 1/4 _____ 3/8 _____
1/2 _____ 3/4 _____ All _____
54. Do you have frequent colds? Yes _____ No _____
55. Do you tire easily? Yes _____ No _____

Food Knowledge

56. Are you careful what you eat? Yes _____ No _____
57. Can you name the Basic Four Food Groups (Used as a guide in selecting food eaten daily)?
1. _____ 2. _____
3. _____ 4. _____
58. How many servings of fruit and/or vegetables do you feel a person needs each day for a varied diet?
1 2 3 4
59. How many servings of milk do you feel a person needs each day for a varied diet? 1 2 3 4
60. How many servings of bread and cereals do you feel a person needs each day for a varied diet? 1 2 3 4
61. How many servings of meat do you feel a person needs each day for a varied diet? 1 2 3 4
62. Name a food that is rich in good quality protein.

63. Name an iron rich food _____
64. Name a food that contains a high content of calcium

65. What vitamin is needed to help you see in the dark?

66. Name the three B-complex vitamins that are added to enriched bread and flour in the USA.
1. _____ 2. _____ 3. _____
67. Name one food that is excellent as a source of vitamin C.

What is the major problem you have in planning, purchasing or preparing food?

- 68. Cost _____
- 69. Variety _____
- 70. Need recipes _____
- 71. Nutrition _____
- 72. Time _____
- 73. Other _____

Code No. _____

Date _____

Twenty-four Hour Recall of Food Eaten -

Dormitory Versus Apartment Dwellers

FoodAmountNotes

74. Is this an average day? Yes _____ No _____

75. If not, do you usually eat more or less? More _____
Less _____

Letter Sent to Each Subject After the Interview

410 South Hester, #3
Stillwater, Oklahoma
74074

Dear Student:

Thank you for participating in my study on nutrition. I have enclosed your food record along with the computer printout of the nutrients included. The section of the printout marked "portion" is the percentage of the Recommended Daily Allowances for 18 to 22 year old women that you met that day. The RDA is the minimum needs plus a "safety factor" of about one-third. When less than two-thirds of the recommended amount of a nutrient is not met over a period of time, there is a deficiency.

Although one day's food may not represent the overall pattern, it can give some insight. I have enclosed a copy of "A Guide to Good Eating", better known as the "Basic Four", to help in analyzing your printout. Each nutrient comes from one or more of these food groups. If you were low (below 66%) in protein, you may want to add more foods from the Meat Group or from the Milk Group. If you were low in calcium, you may need to add more foods from the Milk Group. Of all the girls in the study, 35 were low in calcium.

The one nutrient that poses perhaps the greatest problem for women is iron. It is not found in any one food group, but is concentrated in certain foods. Green leafy vegetables, cooked dry beans, prunes and prune juice, apricots, enriched cereal and bread and, of course, liver are all iron-rich foods. Eighty-two of the 100 girls in the study reported low iron intakes on the day interviewed. Vitamin A and ascorbic acid (vitamin C) were both low in the study. Forty-seven of the girls were low in vitamin A and 34 were low in ascorbic acid. Both of these vitamins are found in the Fruit and Vegetable Group. Thiamin, riboflavin and niacin are the three B-complex vitamins added to enriched bread and cereal. Many girls stated they were restricting their intake of bread and other starches to keep their weight down. This accounts for the large number of girls low in these three vitamins.

The only concern for those amounts above the RDA is for any unintended weight gain because of the higher calories and the added cost involved in consuming extra protein which the body uses for energy. The main difference in the food

intake of the dormitory and apartment residents, seemed to be the drinking of more milk by dormitory students. This causes calcium and riboflavin to be higher for that group.

Thank you again for your help in the study.

Sincerely,

Fay Woody

Adequacy of 24-hour Intakes of Food

Number of subjects not meeting two-thirds of the Recommended Daily Allowances of each nutrient studied.

	Calories	Protein	Calcium	Iron	Vitamin A	Thiamin	Riboflavin	Niacin	Ascorbic Acid
Apt.	21	5	20	37	25	20	21	12	18
Dorm	16	1	15	45	22	20	18	15	16
Total	37	6	35	82	47	40	39	27	36

Based on 96 subjects, 49 living in campus dormitories and 47 living in off-campus apartments.

Subjects meeting more than the Recommended Daily Allowances for Calories, Protein and Calcium.

	Calories	Protein	Calcium
Apt.	6	29	14
Dorm.	12	35	24
Total	18	64	38

APPENDIX C

CHI-SQUARE ANALYSIS TABLES

TABLE VI

CHI-SQUARE ANALYSIS ON THE FOOD KNOWLEDGE SCORES
 ACCORDING TO YEARS OF HIGH SCHOOL HOME ECONOMICS
 TRAINING RECEIVED BY THE 96 SUBJECTS

Food Knowledge Scores	Years of High School Nutrition Training			Totals
	None	1	2 or more	
Low				
Observed	13.00	8.00	1.00	22.00
Expected	9.17	7.10	5.73	22.00
Cell Chi-Square	1.60	0.11	3.90	5.62
Medium				
Observed	23.00	19.00	13.00	55.00
Expected	22.92	17.76	14.32	55.00
Cell Chi-Square	0.00	0.09	0.12	0.21
High				
Observed	4.00	4.00	11.00	19.00
Expected	7.92	6.14	4.95	19.00
Cell Chi-Square	1.94	0.74	7.40	10.08
Totals				
	40.00	31.00	25.00	96.00
	40.00	31.00	25.00	96.00
	3.54	0.94	11.43	15.91

Total Chi-Square = 15.91231 With 4 Degrees of Freedom

Probability of a Greater Chi-Square = 0.0033

TABLE VII

CHI-SQUARE ANALYSIS ON THE FOOD KNOWLEDGE SCORES
 ACCORDING TO YEARS OF COLLEGE HOME ECONOMICS
 TRAINING RECEIVED BY THE 96 SUBJECTS

Food Knowledge Scores	Years of College Nutrition Training		
	None	Some	Totals
Low			
Observed	22.00	0.0	22.00
Expected	18.10	3.90	22.00
Cell Chi-Square	0.18	3.90	4.73
Medium			
Observed	49.00	6.00	55.00
Expected	45.26	9.74	55.00
Cell Chi-Square	0.31	1.44	1.74
High			
Observed	8.00	11.00	19.00
Expected	15.64	3.36	19.00
Cell Chi-Square	3.73	17.33	21.06
Totals	79.00	17.00	96.00
	79.00	17.00	96.00
	4.88	22.66	27.54

Total Chi-Square = 27.53511 with 2 degrees of Freedom

Probability of a Greater Chi-Square 0.0001.

TABLE VIII

CHI-SQUARE ANALYSIS OF THE FOOD KNOWLEDGE SCORES
 ACCORDING TO YEARS OF 4-H CLUB FOODS TRAINING
 RECEIVED BY THE 96 SUBJECTS

Food Knowledge Scores	Years of 4-H Club Training		
	None	Some	Totals
Low			
Observed	18.00	4.00	22.00
Expected	19.48	2.52	22.00
Cell Chi-Square	0.11	0.87	0.98
Medium			
Observed	53.00	2.00	55.00
Expected	48.00	6.30	55.00
Cell Chi-Square	0.38	2.94	3.32
High			
Observed	14.00	5.00	19.00
Expected	16.82	2.18	19.00
Cell Chi-Square	0.47	3.66	4.13
Totals	85.00	11.00	96.00
	85.00	11.00	96.00
	0.97	7.47	8.43

Total Chi-Square = 8.43114 with 2 degrees of Freedom

Probability of a Greater Chi-Square = 0.0146

VITA

LaVera Fay Woody

Candidate for the Degree of

Master of Science

Thesis: EATING HABITS OF OKLAHOMA STATE UNIVERSITY SINGLE
WOMEN STUDENTS HOUSED IN DORMITORIES VERSUS OFF-
CAMPUS APARTMENTS

Major Field: Food, Nutrition and Institution Management

Personal Data: Born in Lebanon, Missouri, June 13, 1945,
the daughter of Preston and Una Woody.

Education: Graduated from Parkview High School, Springfield,
Missouri, in 1963; graduated from Southwest Missouri
State University, Springfield Missouri, in 1968 with a
Bachelor of Science degree in home economics, with a
major in foods and nutrition; attended Oklahoma State
University, 1971 to 1973, and completed the require-
ments for a Master of Science degree in July, 1973.

Professional Experience: Nutritionist for the Missouri
Division of Health from 1968-1969; Dietary supervisor
at Baptist Hospital, Oklahoma City, Oklahoma, 1969-
1971; Dietary Aide at St. John's Hospital, Springfield,
Missouri, Summer, 1972.