THE "DINE TO YOUR HEART'S CONTENT" PROGRAM IN VIRGINIA: ASSESSMENT OF RESTAURATEURS AND CONSUMERS

by

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Thesis submitted to the Faculty of the
Virginia Polytechnic Institute and State University
in partial fulfillment of the requirements for the degree of

MASTER OF SCIENCE

in

Human Nutrition and Foods

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December, 1987

Blacksburg, Virginia

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(ABSTRACT)

The "Dine To Your Heart's Content" program was assessed from points of view of selected patrons and restaurateurs in Virginia. Restaurateurs were interviewed and patrons responded to a mail questionnaire. Patrons were divided into four groups: 1)those following a heart healthy diet due to a physician's recommendation, 2)those with a self reported family history of heart disease, 3)those expressing interest in heart disease, and 4)those who expressed little or no interest in heart health.

The frequencies with which patrons dined away from home, dined in restaurants offering this program, and complied with a heart healthy diet when dining out were analyzed. There were no significant differences among groups relative to these factors. The perceived degree of benefit provided by this program also was investigated. Those expressing little or no interest in heart health reported receiving

significantly less benefit from the program than the other groups ($p<0.02$).

Restaurateurs' perceptions of the wants and needs of these patrons and of the advantages and disadvantages of this program were explored. The perceived needs for nutrition training for restaurateurs and their waitstaff also were examined. Ninety-six percent of the restaurateurs expressed a need for nutrition education. Patrons, restaurateurs, and waitstaff were tested for knowledge of food composition relative to fats and oils. The average score was 6.2 out of 13 points with no significant differences in scores among groups.

Major recommendations suggested for this program include: 1)assistance to restaurateurs in the identification of appropriate menu items and in communicating menu attributes positively, and 2)improved nutritional education for both patrons and waitstaff to increase awareness and understanding of the program.

Acknowledgements

My sincere gratitude and appreciation is extended to Dr. Mary Ann Novascone, my committee chairperson, for her continued support, encouragement, and guidance throughout this research project. Appreciation also is extended to Dr. Elizabeth Howze and Dr. Beth Carlson, members of my graduate committee, for their advice and support.

I wish to express my gratitude to Dr. Mary Korslund for being a substitute member on my committee for my defense and to Dr. Robert Frary for his invaluable statistical and computer expertise.

For their support and constant friendship, I wish to

and .

Finally, for offering me encouragement, support, patience, and love, without which this work may not have been completed, I am grateful for my parents,

, and ; and

especially for , for his unending patience and love.

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INTRODUCTION

Nutrition-related programs recently have become an important aspect of many restaurant programs. Restaurateurs are becoming more interested in this area because of the public's increasing interest in health (1-5). This interest in health is important to the restaurant business because of the increased number of meals the public eats away from home. Forty percent of the consumer food dollar currently is spent on food eaten outside the home (6-8).

Sixty percent of the adult population has professed to have made changes in their at home eating habits in the past several years to comply more closely with the suggested U.S. Dietary Guidelines (9-10). Furthermore, forty percent of these adults reported that they continue to comply with the suggested guidelines when dining out (9-10).

Consumers may change eating habits due to personal concerns. Specifically, a growing number of people appear to be following a "heart-healthy" diet (3,6). Interest in this type of diet may stem from the fact that coronary heart disease is the leading cause of death in the United States (11-13).

With increasing consumer interest in health and increasing consumer expenditures on meals eaten away from home, restaurateurs now have a growing health-conscious clientele whose needs must be met. To meet the needs of

this new group, many restaurateurs are developing nutritious menu options or programs, often with the aid of organizations such as the American Heart Association (AHA). Corporations such as Stouffers and Four Seasons have developed their own health-related dining programs (3,6). However, the Eating Away From Home Program sponsored by the AHA is the most widespread program used in restaurants (3). This program assists restaurateurs in the modification, development, and promotion of menu items that meet the guidelines of the AHA . Registered dietitians serve as consultants to the restaurateurs during the process. The AHA provides detailed dietary guidance to the restaurateurs, educational materials for both kitchen staff and patrons, and advertising and promotional suggestions for marketing.

The success of nutrition related programs in restaurants partially depends upon how well the programs meet the needs of the target group. Both patrons and restaurateurs must be satisfied with aspects of the program from implementation through production and use of the program. Information concerning the success of the Eating Away From Home Program in Virginia (known as the "Dine To Your Heart's Content" program) is needed for the following reasons:

1. To provide information about the program to restaurateurs to encourage their participation.

2. To better utilize the resources of nutrition experts, specifically dietitians, to improve the quality and success of the program.

3. To better promote the program to consumers.

The goal of this study was to determine how restaurateurs and the public perceive the "Dine To Your Heart's Content" program and to make recommendations designed to improve the acceptability of the program to these two groups.

REVIEW OF LITERATURE

Coronary Heart Disease

Coronary heart disease (CHD) is currently the leading cause of death in the United States (11-12, 14-19). Almost one million deaths per year can be attributed to CHD, while nearly forty million people suffer from some type of heart or blood vessel disease (17-18). An initial, unexplained decrease in mortality due to CHD began in 1950, resulting in a 30% decrease by 1984. At least two thirds of this decrease occured since around 1970 (15).

This most recent decrease in CHD mortality was attributed partially to two factors (17). First, in 1964, the Surgeon General issued a warning that cigarette smoking could be harmful to health. Second, at about the same time, the AHA made dietary recommendations to the public on how to reduce risk of heart disease, possibly resulting in diet modifications such as reduced dietary intakes of cholesterol and saturated fat (17, 20). Recently, the public has become more actively concerned about risk factors that may contribute to CHD.

There are numerous risk factors known to contribute to CHD. These factors include cigarette smoking, stress, sedentary life style, diabetes, hypertension, family history, obesity, and increased blood lipid levels including

serum cholesterol (11-15, 17-19, 21-24). Researchers also have found that genetics play a dominant role in the occurrence of coronary heart disease (18-19, 25-27). Diet is considered to be an important contributory risk factor to CHD because several controllable factors are related to diet, such as increased serum lipid levels. Serum lipid levels can be affected by the amount and type of dietary fat and the amount of dietary cholesterol.

An association between cholesterol and cardiovascular disease was first recognized during World War II. At this time, foods containing significant amounts of cholesterol, such as butter, eggs, and meat were in limited supply. When dietary intake of these foods was decreased, mortality associated with cardiovascular disease declined in Western Europe. This association led to further investigations concerning the relationship between cholesterol and cardiovascular disease (11, 18, 20).

Cholesterol, a sterol present in living tissues, is necessary for the synthesis of steroids and bile acids as well as for modulating fluidity of animal cell membranes. It can be synthesized by cells and it is also manufactured in the body by the liver (18, 25, 28). A diet high in cholesterol and animal fats may contribute to high serum cholesterol levels (18-19, 25). In this case, it is often recommended that dietary sources of cholesterol be decreased

due to the known correlation between high serum cholesterol levels and heart disease (18-19, 21 23, 25, 29).

Results of some studies (21, 23) indicated that in countries where the population had a low intake of cholesterol and saturated fat, there was a decreased incidence of CHD when compared to countries with populations having a high dietary intake of cholesterol and saturated fat. In addition to these studies are migrant studies in which people who have relocated from a country with a low incidence of heart disease to a country with a high incidence were followed and evaluated. Kato (30) and Tillotson (31) compared, for example, the occurrence of CHD among Japanese in their homeland with those who had relocated to the U.S.. Results indicated that those Japanese who consumed the traditional Japaneses diet which was low in fat and high in complex carbohydrates had low levels of blood cholesterol and other lipids. However, those who adopted the typical high-fat American diet had elevated blood lipid measurements along with an increased incidence of heart attacks (21, 30-31).

Hypercholesterolemia is an abnormally high blood cholesterol level. It is difficult to specify a level of serum cholesterol which defines a hypercholesterolemic state due to the wide range of levels exhibited by different age groups. However, a Consensus Developement Panel sponsored

by the National Heart, Lung, and Blood Institute of the National Institutes of Health defined two levels of hypercholesterolemia: severe and moderate hypercholesterolemia. Both levels are associated with increased risk of coronary heart disease and both should be treated (19).

Severe hypercholesterolemia is associated with values at approximately the 90th percentile or above as determined by the Lipid Research Clinics Prevelence Study. These levels vary according to age: 20-29 years/ > 220 mg/dL; 30-39 years/ > 240 mg/dL; 40 years or older/ > 260 mg/dL. This category includes individuals with hereditary forms of hypercholesterolemia who required the most aggressive treatment.

Moderate hypercholestolemia is associated with values approximately between the 75th to 90th percentiles. These levels also vary according to age: 20-29 years/ > 200 mg/dL; 30-39 years/ > 220 mg/dL; 40 years or older/ > 240 mg/dL. This category includes people whose elevated blood cholesterol levels are in part due to their diet.

Approximately fifty percent of the adult population in the U.S. have serum cholesterol levels above 200-230 mg/dL. Average serum cholesterol levels are 220-280 mg/dL (14, 19). These figures exemplify the need to decrease dietary intake of cholesterol and saturated fat.

Several factors such as age, gender, and level of physical activity may affect serum cholesterol levels (17, 32). Two additional important contributory factors are diet and genetics (18-19, 21, 23, 25-27, 29). Familial hypercholesterolemia (FH) is a genetic disease in which serum cholesterol levels are elevated many times above normal and heart attacks occur early in life. This disease affects nearly half a million persons in the United States (18, 25, 27). In normal cholesterol transport and metabolism, low density lipoproteins (LDL) are responsible for carrying the majority of serum cholesterol. Lipoprotein receptors on cell surfaces regulate plasma cholesterol levels by binding cholesterol-carrying lipoproteins and transporting them into the cell by receptor-mediated endocytosis (18, 25).

Familial hypercholesterolemia is caused by inherited defects in the gene encoding the LDL receptor resulting in fewer effective receptors. This causes cholesterol to be removed from the plasma at only two thirds the normal rate. These defects disrupt the normal control of cholesterol metabolism resulting in serum cholesterol levels up to eight times higher than normal levels (18, 25, 27). However, the majority of patients with high LDL levels do not suffer from FH. These high levels are probably produced by subtle abnormalities in many genes. The deleterious effects of

these genes is aggravated by environmental factors such as a high intake of dietary fat, calories, and cholesterol (27).

Both the type and amount of dietary fat may affect serum cholesterol levels. Diets high in saturated fat have been found to increase serum cholesterol levels, while diets high in polyunsaturated and monounsaturated fats have been found to reduce these levels. Polyunsaturated fats have a greater effect on serum cholesterol levels than do monounsaturated fats (11, 22-23, 33). Saturated fats are known as "hard fats" because they are hard at room temperature. These fats occur naturally in animal products, including dairy products, as well as in a few vegetable products such as coconut, palm and palm kernal oils, and cocoa butter. Liquid oils that have been hydrogenated are also considered saturated fats (22-23). Polyunsaturated and monounsaturated fats are liquid at room temperature and are found primarily in vegetable products although they can also be found in some fish oils (22-23). The amount and type of dietary fat as well as dietary cholesterol is important in maintaining appropriate serum cholesterol levels.

The typical American diet is high in fats, cholesterol, sugar, Calories, and sodium. Because of the association between dietary risk factors and heart disease, a diet low in cholesterol and saturated fat is recommended for a large portion of the population. The results of one study

suggested, however, that many people did not associate diet with disease, or else they believed that the disease was not serious (34). One result of these beliefs was often poor compliance with a recommended diet (17, 34-35).

In spite of the known correlation between dietary risk factors and heart disease, some studies revealed that many doctors did very little patient counseling about these risk factors (12, 16). Several reasons have been suggested to explain this lack of counseling. Physicians may have little or no knowledge about nutrition, of methods of behavior modification, or may not know how to convert figures into dietary specifics for patients. This inability to convert figures into dietary specifics, such as explaining how to reduce dietary cholesterol when serum cholesterol levels are too high, may be due to an inadequate knowledge of food composition (12, 16). Several groups or associations have set dietary guidelines to help the public achieve healthier eating habits. These guidelines are specifically related to decreasing dietary risks that contribute to CHD. The U.S. Senate Select Committee on Nutrition and Human Needs established six specific dietary goals for the United States (17). These goals are:

1. Increase consumption of complex carbohydrates.
2. Decrease consumption of simple carbohydrates.
3. Reduce overall consumption of fats to 30% of total calories.
4. Specifically, consumption of saturated fats should account for about 10% of total energy intake.

5. Reduce cholesterol consumption to 300 mg per day.
6. Reduce salt consumption to about 3 grams per day.

Not only have specific dietary goals been set, but recommendations to help reach these goals have been provided by the committee. The recommendations are:

1. Increase consumption of fruits, vegetables, and whole grains.
2. Decrease consumption of meat and increase consumption of poultry and fish.
3. Decrease consumption of foods high in fat, and partially substitute polyunsaturated fat for saturated fat.
4. Substitute nonfat milk for whole milk.
5. Decrease consumption of butterfat, eggs, and other high cholesterol sources.
6. Decrease consumption of sugar and foods high in sugar content.
7. Decrease consumption of salt and foods high in salt content.

The AHA has established similar guidelines concerning cholesterol and fat. This group recommends that total fat intake should constitute no more than 30% of total Calories, while no more than 10% of total Calories should come from saturated fats. An analysis of current American diets indicates that 42% or more of total Calories are derived from fat (35). Both groups recommend that dietary cholesterol levels should be around 300 mg per day (14, 21, 23). However, dietary cholesterol intakes in the U.S. have been found to range from 500-800 mg/day (23).

The seven recommendation made by the Senate Select Committee on Nutrition to help the public reach the dietary

goals may be easier for some to understand than the specific dietary goals. These recommendations also may provide a method for doctors to convert figures into dietary specifics since it appears that many physicians have difficulty in counseling their patients concerning dietary risk factors (16). Consumer interests and actual eating behaviors have been changing during the past several years, perhaps in response to these types of dietary recommendations.

Nutritional Interests, Trends, and Knowledge of Consumers

The most prominant change in consumer interests in food is related to health and diet (2-3, 8, 10, 36). More specific concerns that appear to be of interest are the avoidance of certain foods such as those high in fat, food substances and ingredients such as preservatives, altered methods of food preparation, increased consumption of foods perceived as healthy, fewer processed foods, and high quality, fresh foods (5, 8). A large segment of the population also is interested in low calorie or light foods (37, 38). Seventy-eight million adult Americans use low calorie foods and beverages. Fify-four percent of these Americans began using these products only within the past five years (37-38).

Much of the public has specific health-related concerns. These concerns include cancer, diabetes, weight gain, high

blood pressure, and heart disease (3, 5, 10). Because of these health concerns, consumers have expressed interest in specific foods and products that may provide beneficial health effects. There is, for example, increased interest in foods high in fiber, vitamins and minerals such as calcium, and foods lower in sugar, Calories, sodium, cholesterol, and saturated fat (1, 4, 8, 10). These interests and concerns have led to changing trends in consumer food consumption.

Patterns of food consumption, both at home and when dining out, have changed gradually over the past twenty years. Chicken and turkey consumption rose over 50% since 1975. Fish consumption also rose over 20% since 1967. There was an almost one pound per capita increase in seafood consumption between 1984 and 1985. Seafood consumption in 1984 was 13.7 pounds per capita. However, by 1985, this figure had risen to 14.5 pounds per capita. Veal, lamb and beef purchases decreased with beef purchases decreasing 10% since 1975. For some unexplained reason, pork consumption rose to a small degree. The meat industry today is trying to recapture some of their customers. Due to the recommendations of the AHA, the industry is placing emphasis on lean, well-trimmed beef and introducing more meats that

are light, lean, low in salt, and convenient to prepare (2, 4, 5, 9, 37-45).

Trends in the types of dairy products consumed have changed dramatically in twenty years although overall consumption of dairy products has declined only slightly. Today, 38% of all milk sales, 54% of all yogurt sales, and 19% of all cottage cheese sales involve low fat products (2, 4, 5). In spite of this increased interest in low-fat dairy products, there also has been a concurrent increase in the consumption of whole milk cheeses. Some of this increase may be due in part to the fact that, for many Americans, calcium concerns outweigh concerns about Calories and cholesterol (46). There also has been a marked decrease in egg consumption (down 30-35%) in the past 35-40 years (38-39).

Fat and oil consumption has undergone the most variable changes of all food categories. Overall, fat and oil consumption rose close to 15% in twenty years with a 12% increase occuring between 1967 and 1981 (2). However, during this rise, consumption of saturated fats decreased while consumption of polyunsaturated fats increased (24). These trends reflected specific changes such as the substitution of vegetable oil, particularly soybean oil, for lard, increased use of salad and cooking oils, and the use of margarine instead of butter. Butter consumption

decreased from eleven pounds per capita in 1950 to 3.8 pounds per capita in 1984 (4, 39-40, 46).

The consumer interest in fresh and natural foods is reflected by the increased consumption of fresh fruits and vegetables (2, 3). Fruit consumption appears to have increased primarily in the categories of fresh non-citrus fruits and fruit juices. Consumption of fruits such as fresh bananas, pears, pineapples, plums, and strawberries has increased most noticably (2). The purchase of canned vegetables has declined, with a concurrent increase in fresh vegetable consumption, especially salad ingredients such as lettuce, cucumbers, celery, green peppers, and tomatoes. Consumption of broccoli, cauliflower, and spinach also has increased (2-3, 9-10, 43).

These trends discussed above translate into nearly two thirds of Americans having made at least one food change for the sake of health or nutrition within the past five years (3, 9-10). Some estimates indicate that perhaps as much as 75% of the American population may recently have changed eating habits for this reason (38). One third of these changes appeared to result from information gathered through the media. Another quarter of the change was a result of information presented in health and diet books (3). While many of these trends reflected changes in dining behavior at home, they also reflected to a smaller degree, changes

people have made when dining out. Forty-eight percent of the affluent, 47% of college graduates, and 42% of people over the age of twenty-five have changed their dining out habits to include decisions made for health-related reasons. In addition to these figures, 44% of all women also have attempted to change their away from home eating habits (3).

Americans now eat one of every three meals away from home (6, 47). Forty percent of the money that consumers spend on food is spent on dining out, compared to the 33% spent as recently as 1970. It is estimated that this percentage will reach 45% by 1990 (7-8).

Some groups of people dine out more than others. For example, singles eat out more than any other size household, averaging 5.6 meals outside the home every two weeks. Households of two people ate out 4.4 times every two weeks; those with three members, 3.7 times; and households with four or more members average 3.6 times (48-50).

As household income increases, the dollar amount allocated to food away from home and the proportion of the total food budget increases. Those households with earnings $40,000 or more spent 43% of their food budget on meals away from home; those with a $30,000-$39,999 household income spent 38%; households with incomes of $20,000-$29,999 spent 37%, and households with a $5,000-$9,999 income spent 26% of their total food budget on meals away from home (50-52).

Consumers spent 40% of their away from home food expenditures at conventional restaurants. Fast food restaurants, however, accounted for the fastest growing source of away from home food expenditures. Consumers now spend 30.1% of their away from home food budget at fast food resaturants. This figure is up from 7.5% in 1954. Hotels and recreational/vacation facilities accounted for an additonal 14.7%. Institutional meals, such as those served in hospitals or schools represented 13.5% of the food budget. Three percent went to vending machines (7).

Some age groups dine out more often than other age groups. Persons between 13 and 21 eat 21% of their meals away from home. Those from 22 to 40 eat away from home 18% of the time. People sixty years of age or older eat out only 8% of the time. When divided by gender, single males, age twenty-three to thirty-four, eat 28% of their meals and snacks away from home. This was the highest percentage of all groups (7).

Results of a study conducted for the National Restaurant Association, based on two Gallup surveys in 1983 and 1986 (9), indicated that, while an increasing number of Americans were aware of health and nutrition issues, they differed in their food consumption patterns. These patterns dictated not only how often consumers ate out, but where they dined. As a result, consumers could be classified as 1)Traditional,

2)Weight Conscious, 3)Health Conscious, or 4)Uncommitted Consumers (9).

The Traditional Consumers were most likely to eat whatever they wanted. Their likes included regular soft drinks, butter, enriched white bread, whole milk, and beef. Their dining out behavior reflected their preferences. Few members of this group had made health-related changes in their dining behaviors.

Weight Conscious Consumers were interested primarily in the Calorie content of what they ate. However, there was also an additional interest in nutritional content. This group consumed more products such as reduced Calorie salad dressings, sugar substitutes, and diet soft drinks. These consumers felt that there were a limited number of restaurants that offered acceptable food choices to people on Calorie restricted diets. They would eat out more often if it were not so fattening (9).

Health Conscious Consumers made the most changes in their away from home eating habits. These people were interested in the nutritional content of the food they ate. They were interested in nutrition primarily because of the government's suggested dietary guidelines. Food preferences for these consumers included fresh fruits and vegetables, whole grains, and foods containing reduced amounts of sodium and fat. These consumers complied with the government's

dietary guidelines when dining out more than any other group (9).

The Uncommitted Consumers had variable food preferences. They did not necessarily make a point of eating nutritious foods, although they made nutritious food choices for other reasons. These preferences also were reflected by their variable dining out behaviors (9).

In spite of efforts to change at home eating behaviors, fewer consumers have made efforts to change their dining out behaviors. While over sixty percent of Americans said they made at least one food change related to nutrition and dining at home, forty percent made changes related to dining out behaviors in the past five years (3, 9). Regardless of where these changes were put into practice, the reasons for making these changes and the extent of the nutritional knowledge of these consumers was variable.

In various studies, when consumers were asked how knowledgable they considered themselves to be concerning nutrition, few consumers reported feeling satisfied with their level of knowledge. In a study of housewives, more than 50% of the participants reported an attempt to feed their families "nourishing and balanced" meals. However, these same participants felt "less positive" when asked about their own understanding or knowledge of nutrition (1). Results from other studies indicated that while consumers

had made positive changes in their eating habits, they did not always understand why they had made these changes (3, 53).

Some consumers may have required more nutritional knowledge than others. These consumers may have suffered from a health-related condition such as heart disease which required them to be more knowledgable about nutrition to make appropriate food choices. This need for adequate knowledge did not necessarily mean the knowledge was available, understood, and applied. For example, Sikorski (54), found that more explanation about all aspects of surgery, including diet instruction, would have relieved a great deal of stress suffered by wives of coronary artery bypass graft surgery patients. All wives were at least aware of such risk factors as high cholesterol diets and weight gain. One third of the wives reported giving their husbands some type of dietary instruction. The majority of their knowledge however, appeared to have been acquired from either the media or from friends. It may be difficult to determine how accurate information is from these sources.

Researchers have compared the extent of nutrition knowledge of faculty women in a non-nutrition field and paraprofessional nutrition education assistants from the Expanded Food and Nutrition Education Program. Faculty were somewhat more knowledgable about nutrition related issues

and topics than the assistants. However, both the assistants, who were in a position to pass on nutritional knowledge to the public, and the faculty members had a relatively poor understanding of several nutrition-related terms (55).

If those in a position to pass on nutritional knowledge to the public had inadequate knowledge, the public could easily become confused or feel a need for additional knowledge. The public often has expressed a desire for additional nutrition related information (3, 56). Both consumers and those involved in the food industry have expressed the belief that the food industry partially is responsible for part of this education by providing foods and products along with nutritional information that will meet the changing nutrition related needs and behaviors of consumers (19, 47).

Health Related Programs in Restaurants

All types of restaurants (e.g. fast food, family dining, and upscale, luxury establishments) gradually have been making changes in the menu items they offer. Almost one fourth of all American restaurateurs emphasized health and nutrition when promoting menu items (57). Results of a 1986 NRA survey (9) indicated that 38% of restaurateurs featured or planned to feature soon a nutritional promotion or plan.

Seventy-three percent of these operators were willing to alter preparation methods. Most restaurateurs who have incorporated nutrition into menu items did so by keeping track of health trends and customer requests (58-59).

The new menu items being offered most often fall under the category of "new cuisine" or "light fare" and are described as natural, light, fresh, nutritious, heart-healthy, or prudent (10, 53). Characteristics that often are emphasized include freshness, quality, seasonality, and method of cooking (8, 53). By offering these foods, restaurateurs are broadening the range of menu items, without deleting other items previously offered.

Items that have appeared in more and more restaurants include salads or salad bars, soups, baked potatoes, whole grain breads, vegetables seasoned with only herbs, along with more seafood and poultry. Less specific changes include decreased use of butter, lard, sugar, and salt. Methods of cooking also have changed, with fewer foods being fried and more foods are being steamed, grilled, and sauted (3, 8, 53, 57, 60).

Small, individual establishments as well as larger restaurant and hotel corporations and chains, have made menu changes geared toward this "new cuisine." Many establishments based their changes on established program guidelines suggested by associations such as the AHA.

Others, however, have done their own research and developed their own unique programs.

Two individual restaurants that developed their own programs include New York City's Four Seasons and the Capt'n Chris Restaurant located in Massachusetts. Four Seasons has named their program Spa Cuisine. These menu items account for 25% of sales rather than the expected 5-10%. The Spa Cuisine menu items are based on the 1978 U.S. Dietary Guidelines and are lower in saturated fat, cholesterol, and sodium, than traditional menu items (3).

Au Naturel, the program offered by the Capt'n Chris Restaurant did not meet with quite the success as the Four Seasons program. When the program was first offered, it accounted for 20% of sales. Now, however, only 11% of sales stem from the Au Naturel items. While not based on any specific guidelines, these items are prepared without salt, fat, MSG, or oil (3).

Larger restaurant chains, including Hilton, Stouffers, and Four Seasons, also have been busy developing their own health and fitness programs. Hilton developed the first extensive fitness program in 1980, with its Fitness First Campaign which offered healthy food along with health information. The foods offered through the program were primarily lower in fat and cholesterol, and included such items as turkey tostada, Cancun crabmeat, and chicken

piccata. Hilton realized that these preferred menu item choices pointed toward a customer preference for Mexican food. These trends of healthy and also Mexican foods led to further development of the Fitness First Fiesta. This program offered additional nutritious foods with a Mexican accent. The program involved not only additional menu items, but also a comprehensive training program for all employees involved (3, 61).

Following Hilton's lead, Stouffers developed their Light and Lean menu in 1981. These items were designed primarily to reduce Calories. Each entree provides less than 450 Calories. There are currently twenty-one items available on the Light and Lean menu. The menu, however, was such a success, accounting for 20% of total sales, that the company planned to increase the number of menu items offered (3, 6, 53).

The Four Seasons hotel chain titled its new program "Menu Alternatives." The focus of this program also is on reduction of Calories primarily. Instead of developing entirely new recipes, existing Four Seasons recipes were converted into lower Calorie items. Each hotel in this chain has a choice of what to offer as long as a minimum of three appetizers, two salads, and three entrees are available. Depending upon location of each hotel, from 5-28% of total sales are from the "Menu Alternatives" items (6).

Many fast food restaurants have become more nutrition conscious. While not a participant in an established nutrition program, McDonalds provides a booklet listing product ingredient data for customers who request it. The idea behind the booklet is to inform customers that McDonalds uses the same quality ingredients as their customers buy in stores. Some McDonalds also provide nutrition information on tray placemats (38, 41).

While many establishments have developed their own health related programs, other businesses developed programs based on guidelines set by the Eating Away From Home Program of the AHA. Smaller restaurant chains that used the AHA guidelines included Tokyo Bowl, Houlihan's, Tokyo West, and the Hungry Tiger. Tokyo Bowl, a Japanese style fast food restaurant based in Colorado, offers menu items acceptable to the AHA. This chain also planned to provide the nutrient content of each approved item. Houlihan's, a nationwide chain of medium-priced restaurants, provides a "Houlihan's Light" menu. This menu provides the calorie count of each menu item offered along with the identification of items prepared according to the guidelines of the AHA. Currently, about 15% of Houlihan's customers use the light menu (3, 38).

Tokoyo West and Hungry Tiger, restaurants that initially had healthy menu items already compatible with the

guidelines of the AHA, used the Association primarily as a means of promoting these items. Tokoyo West offers such items as shabu shabu, yosemabe, and tori mizutake which are naturally low in Calories, fat, cholesterol, and salt (36, 62). Hungry Tiger is a Los Angeles based seafood restaurant chain. Restaurateurs associated with the Hungry Tiger developed their own training manual to prepare employees for possible questions from customers (26, 37).

Two major hotel chains, Sheraton and Marriott, developed special menu items based on the dietary guidelines of the AHA. Sheraton called its program "Eat, Drink, and be Healthy." The special menu items are included on restaurant, room service, and catering menus. All items are low in fat and cholesterol (3, 6).

In 1983, Marriott initiated its program, "Good For You" because it recognized the need of travelers who were required to stay on a regimented diet. Menu items were well balanced and low in cholesterol and fat, in accordance with program guidelines of the AHA. In the initial stages of the program, these items claimed 10% of sales in some of the hotels depending upon location (3, 6).

By offering the "Dine To Your Heart's Content" program restaurateurs are trying to accomodate their clientele who are not only health conscious, but more specifically, those

who are heart-health conscious. These people may be concerned about heart health because of heart problems, a family history of heart disease, or interest in heart health.

Included in this target group are the elderly where more heart problems occur. This group, those 65 years of age and older, will increase by 11% to 32 million between 1985 and 1990 compared to a 5% increase in the general population (38, 41, 43, 50, 58, 63).

Baby boomers are also a target group of restaurateurs offering health related programs. There are 76 million baby boomers who are not only well-educated but also quality and nutrition oriented. Today, even the average consumer is more interested in nutrition than several years ago. For this reason, they too may be interested in health related programs such as "Dine To Your Heart's Content" (38, 41, 43, 50, 63-64). Those restaurants and hotels that developed programs according to the program guidelines of the AHA did so by following specific requirements.

The Eating Away From Home Program of the American Heart Association

In late 1975, the American Heart Association developed a dining program which it called "Creative Cuisine." This name became known more recently as the "Eating Away From Home Program" (3, 62). The purpose of this program is to

assist the public in changing unhealthy eating habits or maintaining appropriate eating habits by helping food service operations provide menu items with reduced Calories, fat, cholesterol, and sodium, according to the dietary recommendations of the AHA (3, 6, 34). This program has probably had more effect on more restaurants than any other organized diet effort promoted by health groups or medical professionals (62).

The AHA believes that the Eating Away From Home Program is a total program. It is aimed at all areas of the population including local restaurant managers, chefs, waitstaff, and patrons. The framework for the program is national; however, chapters are free to vary materials and the methods in which they are delivered to best meet local needs. Dietary guidelines might also vary among chapters provided that local guidelines are acceptable to the National American Heart Association. Chapters are free to alter the name they give this program. Some of the more common names used include the "Hearty Heart", "Eat Well", "Good For You", and the "Dine To Your Heart's Content" programs (3, 62).

Each chapter of the AHA is responsible for supplying participating restaurants with basic materials. These materials include a program guide which discusses how to implement and publicize the program and how to train key

personnel, plan menus, and prepare foods. Additional materials such as recipes, customer brochures, and table tents also are included (3, 37).

The AHA addresses waitstaff education as a necessary component of the Eating Away From Home Program. The waitstaff is provided with a pocketsized folder which introduces the concept of the whole program, along with a "tip sheet" on specific menu items and a table of suggestions for substitutions that meet the dietary guidelines of the program. Although each restaurateur is provided with materials and suggestions for employee training regarding the program, individual restaurateurs have approached employee education differently (3,35).

The results of the study conducted by Vermeersh (55) indicated that employees in a health related field who were responsible for imparting nutritional knowledge to the public often had nutritional misconceptions. This fact, coupled with the belief held by both consumers and the food service industry, that the food industry partially is responsible for nutrition education of the public (19, 47), emphasizes the importance of waitstaff education.

The Hungry Tiger seafood restaurant chain developed their own employee education program, using materials from the AHA. Rather than training staff during working hours, they use a take home mini-manual which explains program

specifics. Other means of educating waitstaff used by various restaurants include staff orientations, training sessions, role playing, and small group discussions. Education methods for waitstaff depend entirely upon the individual needs of each restaurant or business (36).

The "Dine To Your Heart's Content" Program of the Virginia Affiliate of the American Heart Association

The Virginia Affiliate of the American Heart Association (AHAVA) entitled its program, "Dine To Your Heart's Content" (Heart's Content). Specific guidelines for this chapter closely follow the national guidelines (65-66). To participate in the Heart's Content program, each restaurateur must make four basic agreements:

1. Meet the minimum requirements of the program.
2. Identify the approved entrees on its menu with the logo of the program.
3. Display the program sign in a prominant location on the restaurant premises to inform the public of the availability of the program.
4. Agree to follow the guidelines for approved foods.

As long as these requirements are met, the restaurateur is elgible to display the Program sign signifying approval of the AHAVA. The restaurateur must continue to see that the agreed upon guidelines of the program are being maintained.

In response to these agreements, the AHAVA provides information and materials to each participating restaurateur. AHAVA provides the following:

1. A review of the restaurant menu by qualified person

or persons holding a degree in the field of foods or nutrition, to determine elgibility for the Program.
2. Program signs, including window decal and logos, to identify approved entrees.
3. Patron educational materials.
4. Monitoring of approved entrees to assure adherence to Program criteria.
5. The opportunity to participate in a voluntary advertising agreement.

The approved entrees may be marked with the logo of the AHA in a variety of ways. Heart and Torch stickers can be used to identify these entrees in conjunction with the Heart Explanation Statement. The Statement, in the form of a sticker, explains the heart symbol beside approved entrees. A Reproduction Sheet also may be used when printing a separate menu or when reprinting an existing menu. A rubber stamp and ink pad, displaying both the heart and torch symbol as well as the heart explanation also can be used on any menu that is not laminated.

The Patron brochures which are provided to each participating restaurateur outline the program and give customers tips on dining out. Table Tents also are available to inform customers about the program. Salad Bar Stakes also may be used to inform patrons of salad bar items that are approved as part of the program.

The Handbook for Food Service Managers provides education for all levels of employees. There is an introduction to the program and guidelines for approved foods which are directed toward the manager. A Guide for

Food Service Employees also is included. This portion of the Guide suggests that the waitstaff be prepared with positive, knowledgable statements for patrons. These suggestions include that margarine is recommended for the heart conscious, skim and low-fat milk are lower in fat, Calories, and cholesterol, and that chicken, turkey, veal, and fish in moderate portions are preferred meat choices. Also included in the Manager's Guide are Chef preparation tips, tips for adjusting recipes, and suggested cooking methods. In addition, chefs are required to prepare all approved entrees so that they meet dietary guidelines of the AHA program.

Each restaurateur must provide a minimum of four entrees which are fat and cholesterol controlled and may be lower in calories than traditional menu items. Each category of food has specific guidelines which meet the dietary guidelines of the AHA. Each meat, fish, or poultry entree must be six ounces or less. This smaller portion probably would be taken advantage of by several segments of the population. In the National Restaurant Association's Consumer Nutrition Concerns and Restaurant Choices survey (9), 57% of participants strongly agreed that restaurants should offer different portion sizes. Portion size was a concern for not only those concerned with heart health but also for dieters and women in general, especially those over 45 years of age

(63, 67-68). Each entree prepared must contain no more than 15% total fat. Fat must be trimmed from all meat and skin removed from chicken. There can be no fat or high fat ingredients added to cooking methods. Chefs must use only approved meat, fish, poultry, and eggs in the approved menu items.

Many dairy products are acceptable on the Heart's Content program. Milk may be low-fat (2%) although nonfat milk is preferable. Acceptable nondairy creamers must be made from approved oils. Only low-fat cheeses (10% fat or less) are acceptable. Examples of these cheeses include low-fat cottage, Weight Watchers, and mozzarella cheeses.

Any types of fats or oils used in cooking approved foods must contain a ratio of polyunsaturated/saturated fats of greater than 1.0. Acceptable oils included soybean, corn, safflower, and sunflower oils. When margarine is used, one of the accepted liquid oils must be the first ingredient listed in the contents.

All vegetables are acceptable if prepared with little or minimal approved fat. Yeast bread and quick breads made from approved shortening or oils might be used. However, no egg, cheese, or butter crust breads are acceptable.

Desserts made from approved ingredients also are acceptable. These desserts may include ice milk, angel food

cake, and skim milk puddings. Fresh fruits are acceptable dessert items.

Soups might be approved if fat has been skimmed after being chilled, and if milk-based soups are made from low-fat or skim milk. Salads might contain vegetables, fruits, and approved fish and poultry. Mayonnaise is acceptable as well as salad dressings made with mayonnaise, buttermilk, and approved polyunsaturated oils.

No specific guidelines are given for the sodium content of approved menu items. Salt, seasoned salt, MSG, and Accent might be used, although it is recommended that these products should be omitted during preparation whenever possible and left to the discretion of the customers for use at the table.

The Los Angeles Affiliate of the AHA also has named their program "Dine To Your Heart's Content." Patrons who took advantage of this program were polled. All participants in the poll expressed an interest in the program. The patrons were as pleased with the program as the participating restaurateurs. All patrons believed that the program had beneficial aspects (62). Informative feedback such as this does not exist for the Virginia Affiliate of the American Heart Association.

Nutrition has become a leading concern of the American public. Heart health, specifically, is a major concern because coronary heart disease is the leading cause of death in the United States (11-12, 14-19). The Virginia Affiliate of the American Heart Association sponsors the "Dine To Your Heart's Content" program to help those people with concerns about heart health when dining out. It was the goal of this study to determine both patron and restaurateur perceptions of this program and to obtain evaluative information to make recommendations designed to improve the acceptability of the program.

METHODOLOGY

Sample and Sampling Strategy

The Virginia Affiliate of the American Heart Association (AHAVA) provided a listing of all restaurants in Virginia in which the "Dine To Your Heart's Content" (Heart's Content) program was offered. Twenty-one of these restaurants were located in the Richmond, Blue Ridge, and southwestern areas of Virginia. These areas were chosen based upon limited financial resources and time constraints of the researcher.

Restaurateurs associated with these restaurants were identified as potential participants in this study. These restaurateurs initially were contacted by telephone to determine if their restaurants were free standing (not associated with another business or organization) with a minimum of 100 covers per prime period (i.e. maximum sales volume, excluding breakfast). Sixteen of these restaurateurs (76%) agreed to participate in the study. Of the five restaurants that were not included in the study, one did not fit the criteria of a minimum of 100 covers per prime period. The four remaining restaurateurs cited busy schedules or infeasibility due to restaurant construction as reasons for declining to participate in the study. Approximately one half of the restaurants were located in

Richmond and one half in the southwestern and Blue Ridge areas of Virginia. After eligible restaurateurs had agreed to participate in the study, the restaurants were classified as upscale/luxury (3), atmosphere/ specialty (11), and midscale/family (2) (Appendix A), based upon menu prices and types of service.

Following the initial contact by telephone, interested restaurateurs received a follow-up letter explaining the purpose of the research project (Appendix B). The restaurateurs then were contacted by telephone a final time to obtain verbal agreement to participate in the study and to set up interview appointments and times at which patrons could be approached to determine their willingness to participate. A total of fifty-six restaurateurs, chefs, waitstaff, and hostesses (staff) agreed to participate in the study. The sixteen restaurateurs who were interviewed were included in this total. Several categories of restaurateurs were interviewed: owners (9), managers (6), and chefs (1).

Patrons

All patrons either entering or leaving the restaurants at the selected hours were approached to determine their willingness to complete a mail questionnaire concerning their dining out habits, and those willing to participate were asked to complete a contact/address card (Appendix C).

Patrons were also asked to list menu items ordered during the meal at which they were contacted.

Two meal periods per restaurant were used to collect address cards from patrons: one weekday lunch and either one weekday dinner or one weekend dinner. These meal periods were chosen to obtain the best representative sample of all clientele dining at participating restaurants. Six restaurants were sampled on a Tuesday, 7 on a Wednesday, 2 on a Thursday, and 1 on a Friday afternoon. For the dinner meal, 3 restaurants were sampled on a Tuesday, 5 on a Wednesday, 3 on a Friday, and 5 on a Saturday evening (Appendix D). Follow-up cards (Appendix E) were sent to patrons one to two weeks after the questionnaire had been mailed to them to remind patrons to return the questionnaires.

Research Questions

This study addressed the following research questions:

1. How often did these groups of patrons dine away from home? What percentage of the time did they dine in restaurants offering the Heart's Content program, and why?
2. Did patrons that normally followed a heart healthy diet comply with this diet when dining out?
3. What were the self-reported wants and needs of these patrons relative to menu item selection?
4. What was the extent of nutrition knowledge of these patrons regarding a heart healthy diet?

5. How beneficial did these patrons view the Heart's Content program to be?

6. What were the restaurateurs' perceptions of the wants and needs of these groups of patrons relative to menu selection?

7. How knowledgable about food composition were the restaurateurs, their waitstaff, chefs, and hostesses?

8. What were the restaurateurs' perceived needs for training in nutrition for themselves and for their staff?

9. What were the restaurateurs' perceptions of the advantages and disadvantages of the Heart's Content program?

Data Collection Tools

Survey tools (Appendices F and G) were developed to solicit the following information from patrons:

1. The frequency with which they dined away from home.
2. The percentage of time they dined in restaurants offering the Heart's Content Program, and their reasons for doing so.
3. Compliance of patrons following a heart healthy diet, when they dined away from home.
4. The self-reported wants and needs of patrons relative to menu item selection.
5. Their knowledge of food composition.
6. Perceived benefit of the Heart's Content program.

A cover letter briefly explaining the questionnaire also was sent to each patron (Appendix H).

When patrons were first contacted, they were asked not only to fill out an address card so that they could receive the questionnaire, but also to indicate what menu item they had ordered for the meal at which they were contacted. This information was used to determine dietary compliance with a

heart healthy diet. The following criteria were used for the evaluation of dietary compliance: 1) the ordering of menu items acceptable to the AHA as indicated by appropriately marked menu items, and 2) the ordering of menu items consisting of foods acceptable to the AHA and cooked with appropriate preparation methods as indicated by program guidelines, in the event that menus were not marked. Menus from each restaurant were collected during the restaurateur interviews.

Survey tools (Appendices G and I), were developed to solicit the following information from restaurateurs:

1. Their perceptions of the wants and needs of this group of patrons.
2. Their knowledge about food composition, as well as the knowledge level of their chefs, waitstaff, and hostesses.
3. Their perceived needs for nutrition training for themselves and their staff.
4. Their perceptions of the advantages and disadvantages of the Heart's Content program, to both themselves, and to their patrons.

The research questions that were addressed determined the type of questions that were developed for survey tools. Questions were formulated in such a way that would be easy for the patrons to understand and would take a minimum amount of time to complete.

After it was determined that the initial Patron Dining Questionnaire addressed all designated research questions,

the survey tool was pretested. The pilot study was completed by two groups. The pretest was administered first to patrons at a local restaurant in Blacksburg, Virginia. Patrons at this restaurant were approached after they had ordered their food but before they received their meal and were asked if they would be willing to participate in a study concerning patron dining out habits by completing a five to ten minute questionnaire. Completed questionnaires were collected from patrons before they received their meal. Fifteen patrons agreed to participate.

The second group completing the pretest consisted of volunteers from a local cardiac prevention and rehabilitation center in Blacksburg, Virginia. This group was chosen to participate in the pilot study because of their existing heart problems or risk factors for heart disease. It was believed that they would best represent the clientele who might take advantage of the Heart's Content program. Twenty-five volunteers from this group participated in the pilot study.

Completed questionnaires from the pilot study were analyzed and further refined for the development of the final Patron Dining Questionnaire. Question number five was initially asked as an open-ended question: "For what reasons do you dine out?" The responses to this question then were formulated into a forced choice question on the final survey tool in which patrons rated the importance of

each of these reasons for dining at the restaurant where they were contacted.

Questions nine and nineteen were initially worded such that volunteers for the pilot study checked appropriate responses that applied to themselves. On the refined questionnaire, patrons rated each possible response for these questions on a scale of 1-5.

Question sixteen, which was concerned with the characteristics of menu items featured on the "Dine To Your Heart's Content" program also was asked initially as an open ended question. Responses obtained from this question on the pilot test were used to formulate a forced choice question for patrons on the refined, final survey tool in which patrons checked the presented characteristics. Remaining questions on the initial pretest were deemed acceptable for the final survey tool based upon analysis of responses received from the pilot study.

The nutritional knowledge survey tool was developed using the guidelines supplied to restaurateurs by the American Heart Association. These guidelines presented specific foods and preparation methods that were acceptable to the AHA. Because restaurateurs and their staff received their information in this manner, this survey tool was designed to determine the extent of nutritional knowledge concerning acceptability of specific foods and preparation methods that were addressed by the AHA. To facilitate valid

comparisons, the same data collection tool was used for both patrons and the restaurateurs and their staff.

The initial nutritional knowledge questionnaire was administered to restaurateurs and their staff to pretest the instrument before mailing it to participating patrons. The results of this pilot study were used to refine the final instrument and to evaluate the extent of nutritional knowledge of the restaurateurs and their staff.

Question sixteen, regarding the characteristics of menu items featured on the Hearts' Content program, was asked as an open ended question on this pretest as well as on the Patron Dining Questionnaire pretest. The responses to this question from both pilot studies were combined to form the final list of possible characteristics that was presented for question 16 on the refined Patron Dining Questionnaire.

Question 20 on the revised survey instrument, regarding characteristics of a heart healthy diet, also was asked as an open ended question on the pretest. Responses to this question were used to formulate a forced choice question for the final instrument in which patrons checked those responses listed which they understood to be characteristic of a heart healthy diet.

Question 29, regarding sources of nutritional information, was revised after the pilot study to make the question easier for patrons to understand and complete. Initially, the question asked respondants to rank nine

possible sources of infomation relative to how much nutritional information was received from each source. Answers to this question on the pilot study were varied and confused, indicating a lack of clarity with the question.

The revised question contained these same sources of nutritional information for which patrons were asked to merely check a category indicating the degree of information received from each of these sources. Staff responses to this question were divided into three groups: much information, some information, and little or no information received from these sources. Remaining questions on the nutritional knowledge pretest were deemed acceptable for the final survey tool based upon analysis of responses received during the pilot study.

Strategies for Data Analysis

Whenever similar questions were asked of restaurateurs, restaurant staff, and patrons, the same data collection tools were used to facilitate valid comparisons. Descriptive statistics, such as frequencies and means, as well as correlations, chi square tests, and analysis of variance were used to analyze the data.

Data analysis was initiated with a correlation matrix in which each variable of the Patron Dining Questionnaire and Nutrition Knowledge test was correlated with every other variable to ascertain differences among groups and their responses to each question. Whenever significant

correlations (0.30 or higher) between variables were noted, further statistical analysis was applied to those variables in the form of chi square testing.

The test of knowledge of food composition that was completed by staff and by the patrons was first tested for internal consistency using factor analysis. Based on the results of this factor analysis, test items for which virtually every respondant recorded either a correct or incorrect answer were omitted in the final scoring. Other test items that were excluded included those items for which the response was not a reliable indicator of the final test score.

RESULTS AND DISCUSSION

Description of the Patron Sample

Five hundred and eighty patrons were contacted. Two hundred and two questionnaires (35%) were returned. Of these, 178 (31%) were used in the study. The 24 remaining questionnaires were incomplete and did not contain sufficient data to include in the study. Fifty-three percent of responses were from the Richmond area, 31% from southwestern Virginia, and 16% from the Blue Ridge area (Appendix J).

These patrons were divided into four groups: 1)those who specifically described following a heart healthy diet due to the advice of a physician (16%), 2)those who indicated that a family history of heart disease was of a moderate to high degree of importance regarding their diet (42%), 3)those who placed a moderate to high degree of importance on interest in the prevention of heart disease (30%), and 4)those patrons who indicated they placed little or no importance on these heart health related factors (12%).

Responses of patrons were analyzed using the demographic variables of age, income, gender, and level of education

achieved. There were no significant differences among the four groups relative to these variables as indicated by the lack of significant correlations between each group and each variable. Patrons fell into six age categories (Figure 1). Regarding gender, 60% of respondants were female and 40% were male.

A question regarding income had nine separate response categories. Due to few responses in three categories (<$5,000, $5,000-$8,999, and $9,000-$14,999), they were collapsed into one, resulting in 7 income categories. The majority of the sample (52%), indicated that total family income fell in the first six categories. Forty-eight percent indicated their total family income fell into the seventh category of $50,000 or more (Figure 2).

The sample also was categorized according to level of education. Five possible levels of education were presented to patrons although only one response fell into the first category of grade school. The remaining levels of education and the percent of the sample included with each of these categories were as follows: High School (17%), less than 4 years of college (27%), four years of college (22%), and graduate (34%).

Patron Dining Behaviors

Dining Out Frequencies

Patrons were asked how often they ate out for breakfast,

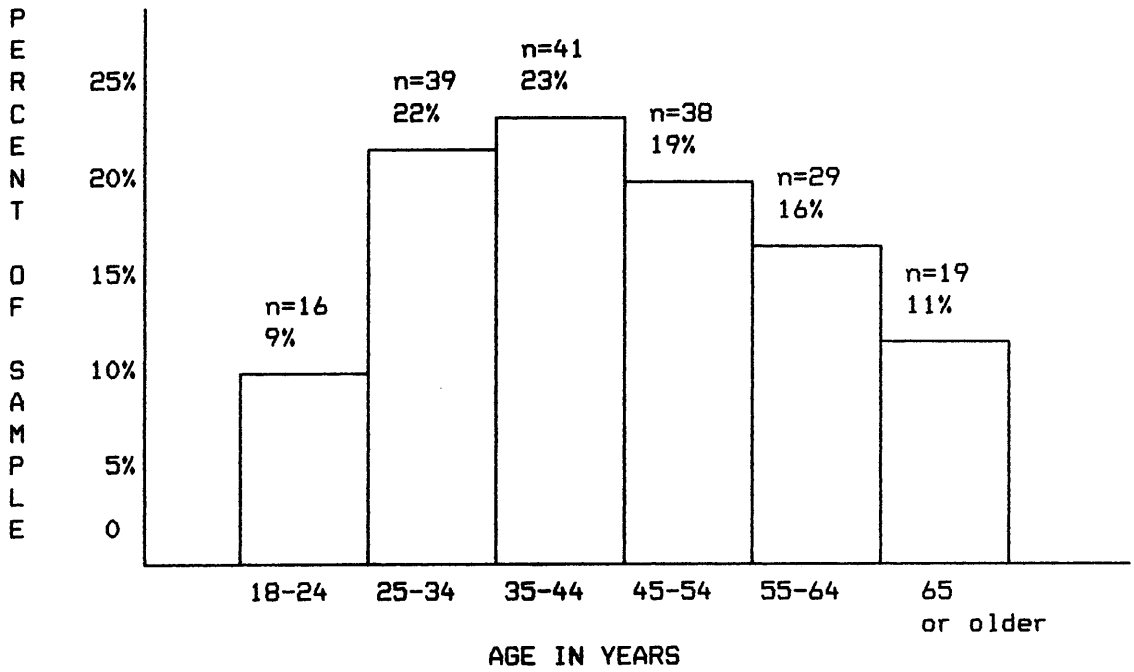

Figure 1. Number and percent of the sample within each age category

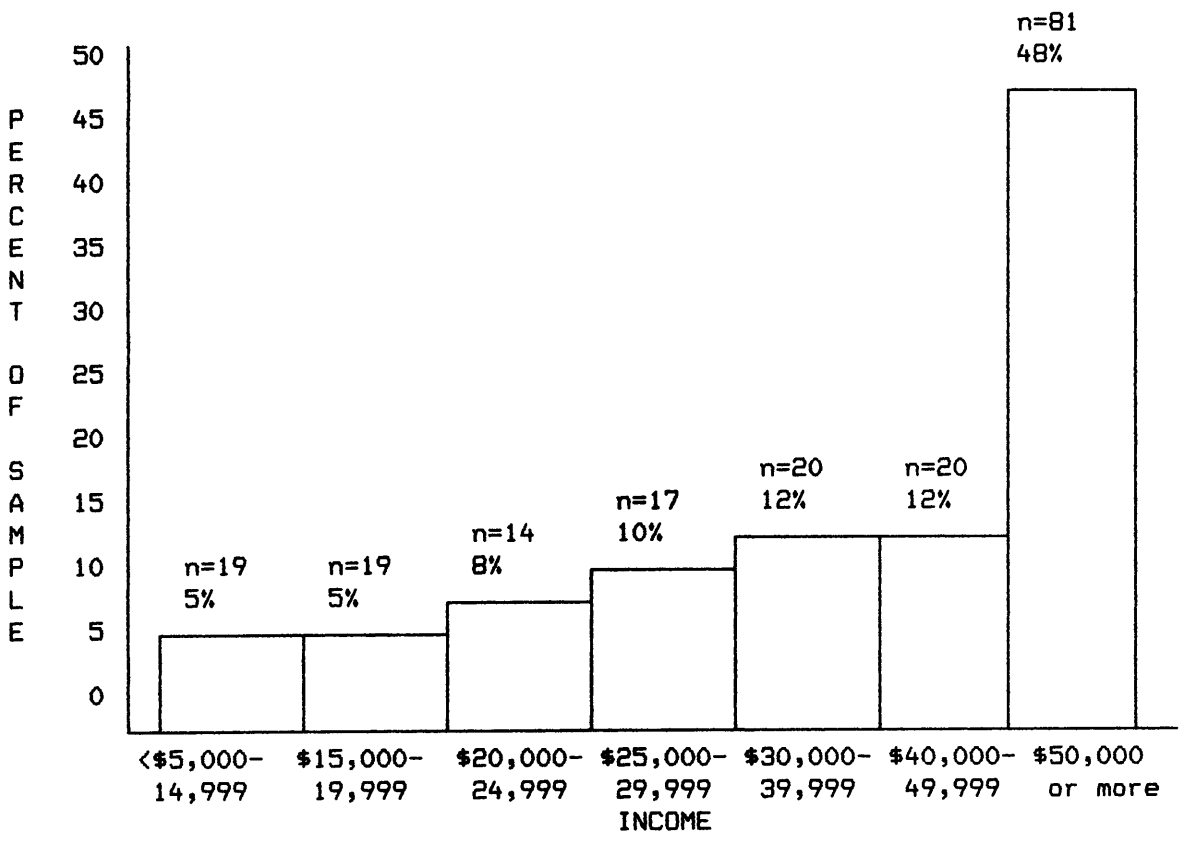

Figure 2. Number and percent of the sample within each income category

lunch, or dinner: less than once per week, 1-2 times per week, 3-4 times per week, or 5 or more times per week. There were no significant differences among the four groups relative to how often any of the meals were eaten out based on the results of the correlation analysis. The majority of the sample (73%) ate breakfast out less than once per week (Figure 3). A larger portion of the sample ate lunch out more often than any other meal. This was determined by adding the percentages of patrons who ate out for each of the meals three or more times per week. Seven percent of the sample ate breakfast out 3 or more times each week; 49%, lunch; and 29% dinner (Figure 3).

Both dinner and lunch were eaten out more often than breakfast (Figure 3). Almost half the sample (48%), ate dinner out 1-2 times per week. Twenty-three percent and 6% ate out 3-4 times and 5 or more times per week respectively. There was a positive correlation of 0.44 between how often lunch and dinner were eaten out, showing that those who tended to eat lunch out more often might eat dinner out more often also.

In addition to asking how often restaurant patrons ate out for each meal, they also were asked how often they specifically dined in resturants offering the Heart's Content program and if they were even aware that the restaurant they were contacted at offered this program.

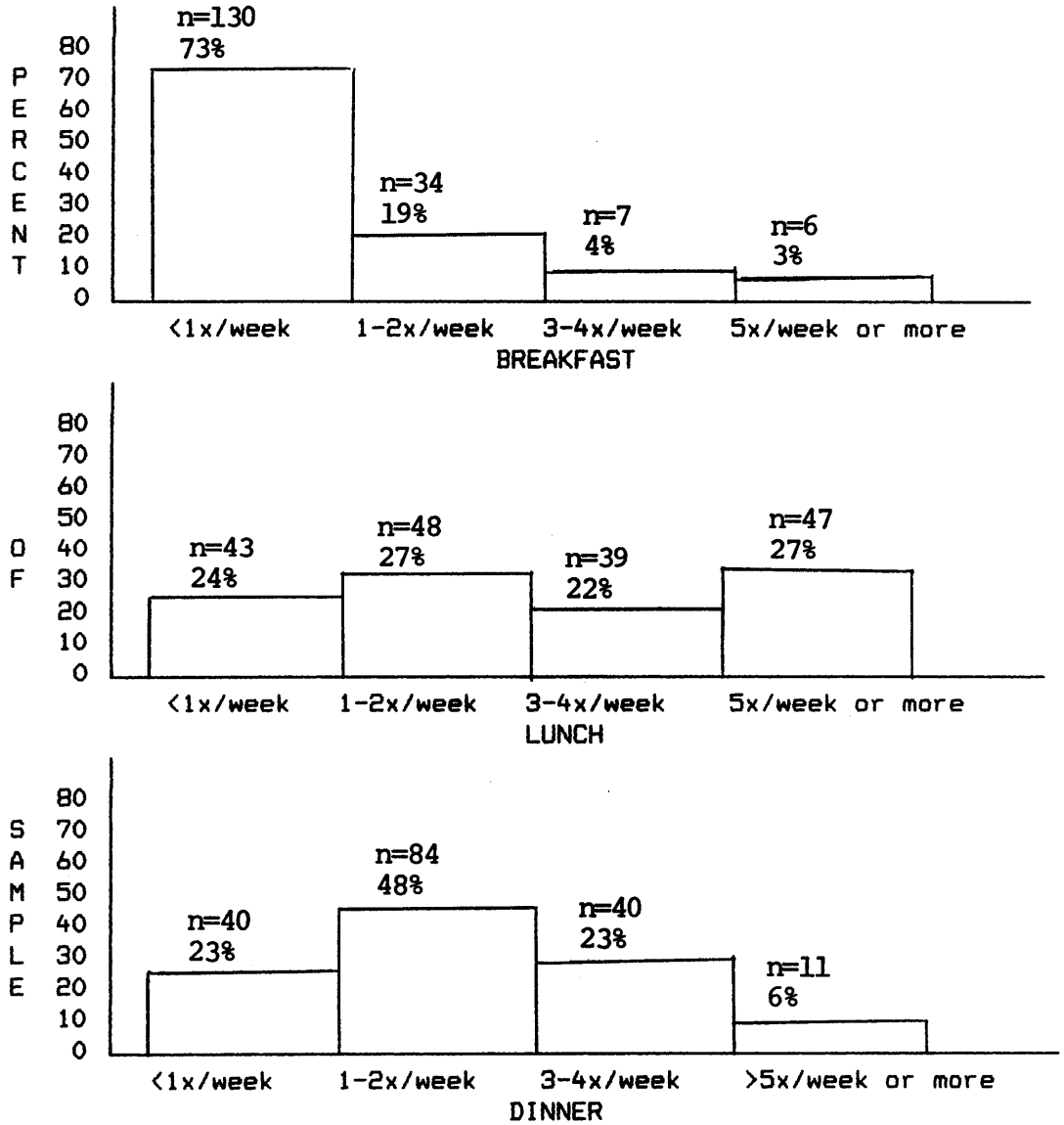

Figure 3. Frequency with which patrons dined out for breakfast, lunch, and dinner.

Slightly more than half the sample, 51%, were not aware that the program was being offered at the restaurant. There were no significant differences among groups relative to awareness of the Heart's Content program offered by these restaurants.

Only 49% of the respondants reported an awareness that the program was offered in the contact restaurant; however, 57% of the sample were aware of the program since they reported the frequency with which they ate in restaurants offering this program. Half of those reporting this information ate where this program was offered less than 25% of the time that they ate out. Nineteen percent of the sample ate 25% of their dining out meals in restaurants with this program. An additional 19% ate in restaurants offering this program 50% of the time. Twelve percent dined at these establishments 75% of the time while only 1% ate 100% of meals eaten away from home in restaurants where the Heart's Content program was offered. There were no significant differences among groups relative to the frequency with which meals were eaten in restaurants offering this program.

The majority of the sample (76%) ate at the contact restaurant less than once per week (Table 1). There were no significant differences among groups relating to the frequency with which they ate at the restaurants where they were contacted. There was, however, a positive correlation

Table 1. Frequency with which patrons ate at contact restaurants

Frequency	N	% of Sample
Less than once/week	134	76
3-4 times/week	10	6
5 or more times/week	5	3

of 0.39 between the frequency with which patrons ate at the contact restaurant and their awareness of the Heart's Content program relative to that restaurant, suggesting that the more often patrons dined at that particular restaurant, the more likely they were to be aware of the program being offered there. Chi square test results indicated that this association was significant ($p<0.001$). This finding might also suggest that the availability of the program may be a factor in the decision of chosing a restaurant.

There also was a positive correlation of 0.46 between how often patrons ate at the contact restaurant and how often they ate at restaurants offering this program. Chi square test results indicated that this association was significant ($p<0.001$). This finding however, would be expected since each participating restaurant offered the program. Patrons would be eating more frequently at establishments with this program in general if they commonly frequented the contact restaurant.

To determine why the public was dining in the contact restaurants and to discern if any of these reasons were related to the availability of the Heart's Content program, patrons were asked to rate reasons why they ate in the contact restaurants on a scale of 1-5. Answers of 1-2 were considered to be of little or no importance while answers of 3-5 were considered to indicate moderate to high degrees of

importance (Table 2).

The reasons of "quick service", "location", "quality of food", "price", "atmosphere", "recommendation", "menu selection met a variety of needs", and "the management accomodated personal requests" were rated moderate to high by over 50% of the respondants. The remaining reasons for dining out were perceived to be of little or no importance to a majority of the sample who answered this question. These reasons included the importance of a "special occasion such as birthday", "business luncheon", "restaurant discount", and "traveling" (Table 2).

The importance of "management accomodated personal requests" and "menu selection met a variety of needs" may perhaps be related to the availability of the Heart's Content program as a reason for dining in restaurants. Patrons who placed a moderate to high degree of importance on these reasons, 75% and 94% respectively, may also place a moderate to high degree of importance on the availability of this program as a factor determining restaurant choice, although this suggestion was not statistically supported, indicated by the lack of significant correlations between any of the reasons given for dining out and the frequency with which patrons dined at the contact restaurant. This lack of correlation then suggests that for the majority of the population, the availability of the Heart's Content

Table 2. Patrons' reasons for dining at contact restaurants

Reasons	Little/No Importance (1-2)*		Moderate-High Importance (3-5)*			
	N	%	N	%	$\bar{X}$*	SD*
Quick service	39	23.5	127	76.5	3.28	1.20
Conveniently located	36	21	135	79	3.40	1.21
Special occasion	90	57	68	43	2.34	1.40
Food is excellent	6	3.5	167	96.5	4.21	0.92
Price	18	11	151	89	3.58	1.05
Atmosphere	15	9	154	91	3.83	1.01
Business luncheon	82	53	74	47	2.48	1.44
Discount	117	76	37	24	1.88	1.30
Good menu selection	10	6	156	94	3.95	1.03
Personal requests met	40	25	120	75	3.14	1.33
Recommendation	65	43	86	57	2.66	1.40
Traveling	99	66	51	34	2.05	1.34

*Rating on 5 point scale

program was not a significant factor when choosing a restaurant. There also were no significant correlations between responses of each of the four groups and the reasons given for dining at these restaurants.

Dietary Compliance

Two methods were used to determine whether patrons who reported that they normally followed a heart healthy diet complied with this diet when dining out. Patrons were asked to report how often they chose menu items for health related reason when dining out: never, rarely, occasionally, often, or always. A large portion of the sample, 45.5%, often chose menu items for health related reasons. A majority of the sample, 85.4%, chose menu items at least occasionally for this reason, suggesting moderate to high self perception of dietary compliance when dining out (Table 3).

There were no significant differences among groups 1, 2, and 3 relative to how often patrons in those groups chose menu items for health related reasons. There was however, a negative correlation of -0.29 between group 4, those expressing little or no interest in heart health, and the frequency with which menu items were chosen for health related reasons. This correlation suggested that those who expressed little or no interest in heart health might show a tendency to make few menu choices for health reasons.

Table 3. Frequency with which patrons chose menu items for health related reasons

Frequency	# of patrons	% of patrons
Never	1	0.6
Rarely	25	14
Occasionally	55	30.9
Often	81	45.5
Always	16	9

The second method of evaluating dietary compliance when dining out was determined by evaluation of the menu item ordered at the meal at which each patron was contacted, as indicated by the response on the contact/address cards that were given to patrons. According to this analysis, only 25% of the sample ordered menu items in compliance with the dietary guidelines of the AHA. Although a portion of the sample (24%) ordered a type of food that was aceptable, an inappropriate cooking method or added ingredient was used. This information suggested that, while some of the sample did not order menu items in complete compliance with the dietary guidelines to the AHAVA, they may have attempted to follow these guidelines by ordering a menu item whose main ingredient was acceptable. This information also suggested that these menu items could be made acceptable with few changes if restaurateurs were interested in increasing the number of acceptable menu items they offered. Again, there were no significant correlations between any of the groups and whether or not accetable menu items were ordered as indicated by the lack of a significant chi square statistic (6.36; $p<0.095$) (Table 4).

Health Related Needs of Patrons

Two strategies were used to determine the wants and

Table 4. Level of association between group membership and compliance of patrons to a heart healthy diet as indicated by menu item selection.

	Complied to Diet	Did Not Comply To Diet	Total n %
Diet Recommended by Physician (Group 1)	a.11 b.2.42 c.6.79	17 0.79 10.49	28 17.28
Family History of CHD (Group 2)	11 2.14 6.79	58 0.70 35.80	69 42.59
Interest in Heart Health (Group 3)	13 0.17 8.02	34 0.05 20.99	47 29.01
Little or No Interest in Heart Health (Group 4)	5 0.07 3.09	13 0.02 8.02	18 11.11
Total N %	40 24.69	122 75.31	162 100

a. First number in each cell represents cell frequency
b. Second number in each cell represents cell chi square
c. Third number in each cell represents cell percent

needs of patrons relative to menu item selection. First, patrons were given an open-ended question asking what additional menu items to help meet their health related needs they would like to see offered in restaurants. Similar answers were reported by each group (Table 5). The largest percentage of patrons (30%) indicated a need for more fresh fruits and fruit juices.

Besides reporting wants and needs relative to menu item selection, patrons were asked to rate on a scale of 1-5 how likely they would be to try certain menu items that might be offered as a heart healthy menu option. This was done in an attempt to determine additional possible wants and needs relative to menu items. Reports of 1-2 were considered as little or no liklihood to try these items, while responses of 3-5 were considered as moderate to high liklihood to try them. There were no significant differences among groups and the likelihood of trying these menu items as indicated by the lack of significant correlations (Table 6).

Nearly 70% of all respondants were moderately to highly likely to try all heart healthy menu items, except for the low cholesterol egg substitute, which only 41% were at least moderately likely to try. Over 90% of respondants reported they were moderately to highly likely to try lean meats, poultry without skin, and broiled or baked fish (Table 6).

Table 5. Health related wants and needs relative to menu item selection as reported by patrons

Wants and Needs	N	%
Reduced cholesterol foods	1	2
More steamed foods	3	5
More high fiber foods	4	6
Reduced sugar foods	7	11
More vegetable variety	7	11
More low fat foods	8	13
More seafood and poultry	10	16
More broiled and baked foods	10	16
More salad variety	10	16
More low salt foods	12	19
More fresh fruits and juices	19	30

Table 6. Patrons' willingness to try heart healthy menu items

Item	Little/no liklihood (1-2)*		Moderate-high liklihood (3-5)*		$\bar{X}$*	SD*
	N	%	N	%		
Calorie controlled entree	29	17	146	83	3.64	1.18
Food cooked without salt	40	23	136	77	3.49	1.33
Lowfat, low calorie, fruit based desserts	30	17	147	83	3.82	1.23
Reduced calorie salad dressings	33	19	143	81	3.79	1.34
Lean meats	12	7	165	93	4.26	1.01
Poultry without skin	13	7	162	93	4.06	1.06
Cereal with skim or lowfat milk	55	32	119	68	3.33	1.55
Low cholesterol egg substitute	104	59	71	41	2.33	1.35
Lowfat cottage cheese	53	30	121	70	3.16	1.36
Broiled or baked fish	14	8	161	92	4.30	1.11
Broiled or baked seafood	19	11	149	89	4.21	1.20

*Rating on 5 point scale

There were several positive correlations however, between four of these possible menu items and the frequency with which patrons reported chosing menu items for health related reasons: calorie controlled entrees (0.35), lowfat, low calorie fruit based desserts (0.35), cereal served with skim or lowfat milk (0.32), and broiled or baked fish (0.31). These correlations indicated that those who chose menu items more often for health reasons were more likely to choose these suggested menu items.

Patrons also were asked what nutritional benefits they looked for in foods they ordered when dining out, including low total fat, low saturated fat, low cholesterol, and low sodium and calorie foods. Group membership was not a factor in determining the liklihood of patrons to try menu items offering these benefits, as indicated by a lack of significant correlations between each group and these benefits. The majority of the group (80% or more) placed at least moderate importance on these benefits as determinants of menu choices (Table 7).

The following correlations between those who indicated that they were more likely to choose menu items for health related reasons and each of these benefits were found: low total fat (0.50), low saturated fat (0.50), low cholesterol (0.42), low sodium (0.38), and low calorie (0.43)). There also were positive correlations between four of these menu

Table 7. Importance of heart healthy characteristics of foods when choosing menu items as reported by patrons

Benefits	Little/No Importance (1-2)*		Moderate-High Importance (3-5)*		$\bar{X}$*	SD*
	N	%	N	%		
Low total fat	17	10	156	90	3.76	1.03
Low saturated fat	18	10	155	90	3.77	1.05
Low cholesterol	15	9	158	91	3.85	1.01
Low salt	25	14	148	86	3.69	1.15
Low calorie	28	16	148	84	3.57	1.13

*Rating on 5 point scale.

item benefits and how beneficial the Heart's Content program was perceived to be by patrons. The correlations between menu item benefits and benefit received from the program were as follows: low total fat (o.38), low saturated fat (0.42), low cholesterol (0.40), and low sodium (0.41). The importance placed on the benefit of low calorie items was not significantly correlated with the overall benefit of the Heart's Content program as perceived by patrons. This finding suggests a need for public education regarding the connection between low calorie foods and heart health. One of the recommendations of the AHA is to maintain ideal body weight, suggesting that lower calorie menu items would be beneficial to much of the public.

Another method of determining health related needs of patrons was attempted by asking how many menu items met patrons health related needs in the restaurant where they were contacted. Four categories of answers were available: 1)no menu items, 2)few menu items, 3)several menu items, and 4) many menu items.

There were no significant differences among groups and the number of menu items that met health related needs. The largest segment of the sample (44%) did, however, indicate that many menu items were available in the restaurant where they were contacted, indicating as a whole, that restaurants offering the Heart's Content program in Virginia do offer

adequate menu items to meet the needs of those concerned with heart health. Another large segment (42%) indicated that several menu items met their needs. Twelve percent and 2%, respectively, indicated that few or no menu items met their needs.

Perceived Benefit From the Heart's Content Program

Patrons were asked to report how beneficial they perceived the Dine To Your Heart's Content program to be. There were no significant differences among groups 1, 2, and 3 in their responses to this question. For group 4, however,there was a negative correlation of -0.31 between the perceived benefit of the program and group membership, suggesting that those expressing little or no interest in heart health perceived receiving less benefit from the program than other groups. Chi Square test results indicated this association was significant ($p<.02$) (Table 8). Nearly half of the chi square value (14.83) was contributed by the cell chi square values for group 4, indicating that this group primarily was responsible for the significant overall chi square value.

There were various positive correlations relating to how beneficial the program was perceived to be and other questionnaire items. For example, there was a positive correlation of 0.45 between beneficiality of the program and how often menu choices were made for health related reasons.

Table 8. Association between group membership and perceived benefit from the Heart's Content program

	Slightly or not Beneficial	Somewhat Bene-ficial	Very Bene-ficial	Total n %
Diet recommeded by Physician (Group 1)	a.5 b.0.47 c.4.72	7 0.11 6.60	8 1.40 7.55	20 18.87
Family History of CHD (Group 2)	12 0.18 11.32	21 1.67 19.81	7 1.20 6.60	40 37.74
Interest in Heart Health (Group 3)	11 0.03 10.38	10 0.89 9.43	13 1.80 12.26	34 32.08
Little or No Interest in Heart Health (Group 4)	8 3.78 7.55	4 0.12 3.77	0 3.17 0	12 11.32
Total N %	36 33.96	42 39.62	28 26.42	106 100

a. First number in each cell represents cell frequency
b. Second number in each cell represents cell percent
c. Third number in each cell represents cell chi square

A significant Chi Square value was found ($p<.01$). There also were positive correlations between how beneficial patrons perceived the program to be and nutritionally related benefits that patrons looked for when ordering menu items, as indicated by the previously listed correlations. The greater the benefit received from the program, the greater the importance patrons placed on low total fat, low saturated fat, low cholesterol, low salt, and low calorie menu items. These correlations would be expected to occur since the Dine To Your Heart's Content program menu items were determined by these characteristics.

Nutrition Knowledge

Both patrons and staff took a test related to knowledge of food composition (Appendix G). The factor analysis process used to determine the internal validity of this tool resulted in the use of thirteen test items to compute the final scores. These thirteen test items were reliable indicators of nutritional knowledge and food composition related to fats and oils. The questions on this survey instrument that were used to compute the scores included questions 21a, 21c, 23 (excluding coconut and canola oils) and question 25 (excluding liquid coconut and partially hydrogenated palm oils). Using these thirteen items related to fats and oils, the test was determined to be 80% reliable.

There was not a significant difference between the scores of these two groups. There was, however, a trend towards more knowledge being exhibited by the public, as indicated by the F value of 3.67 ($p<0.06$) when analysis of variance was done. The mean score of this test for the entire sample was 6.09 with a standard deviation of 3.5 (Figure 4). There also were no significant differences in the test scores among the four groups of patrons.

Perceived Characteristics of a Heart Healthy Diet

In addition to having the extent of nutritional knowledge tested, patrons and staff were asked to identify characteristics of a heart healthy diet as they understood it. Responses fell into categories of food, preparation method, and nutrient or food component. Staff were given an open ended question while patrons were given answers to check. This may be one explanation for the variety of answers between the groups. Several characteristics of a heart healthy diet were cited by the staff. Many of these characteristics were mentioned by only a small percentage of this group. These small percentages did not suggest that the majority of the staff viewed these items as uncharacteristic, but only that the majority did not happen to cite these particular items as an answer to this

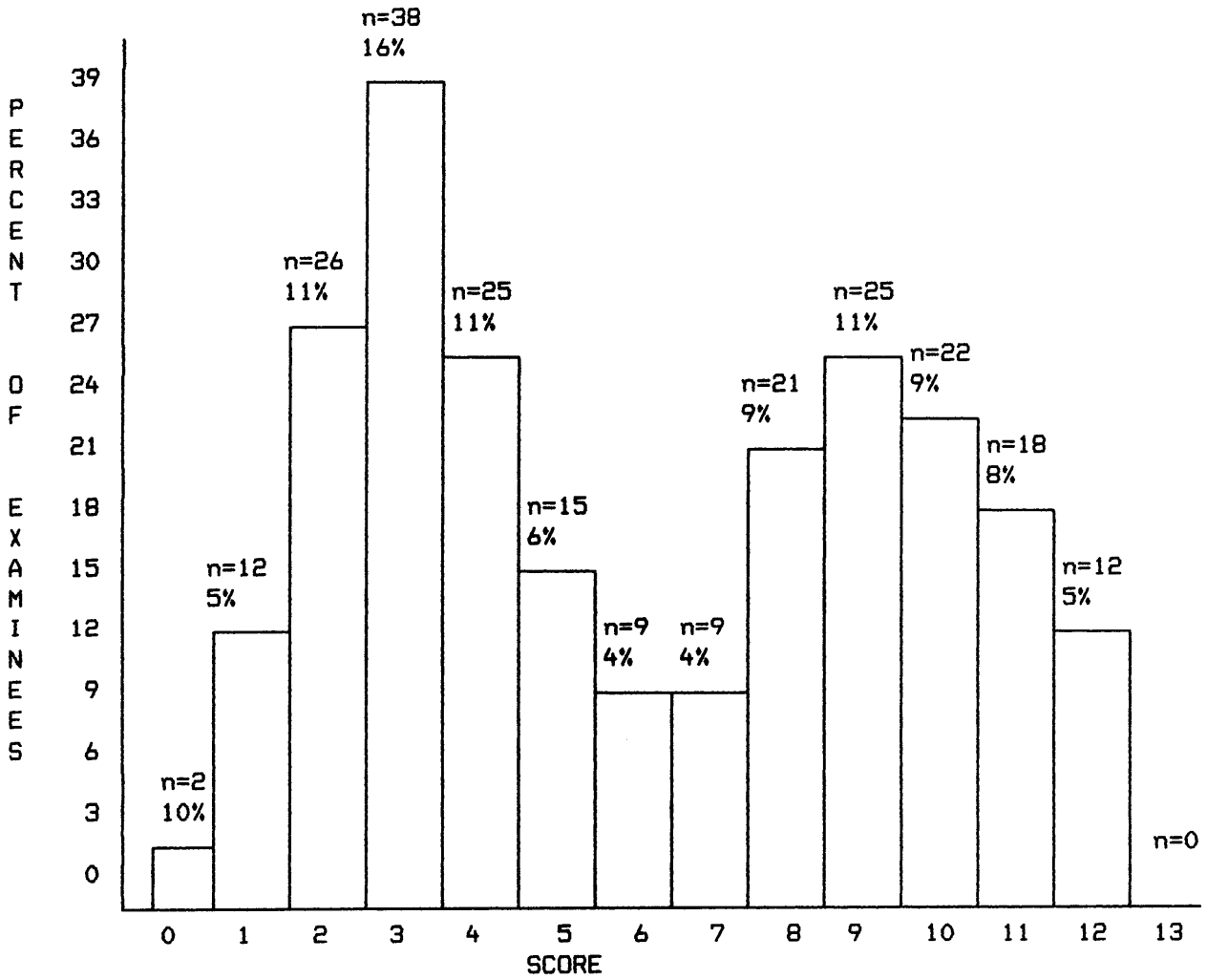

Figure 4. Number of examinees scoring correct answers on the Nutrition Knowledge Test relative to fats and oils

question. One hundred percent of the patrons and 84% of the staff answered this question.

Preparation methods of grilling, blanching, poaching, or stir-frying were listed as characteristics by 2% of the staff. Eleven percent thought steaming was appropriate and that frying should be eliminated. Seventeen and 19% viewed broiling and roasting/baking respectively, as acceptable preparation methods. An additional 9% and 11% indicated that balanced meals and reduced portion sizes were important. Patrons were asked about broiled and fried foods. Eighty percent of the patrons indicated that broiled foods were acceptable while 100% indicated that frying should be eliminated (Table 9).

Staff also listed specific foods they thought were necessary components of a heart healthy diet. Thirteen percent thought skim milk should be included in the diet or that the amount of dairy products should be decreased. Thirteen percent and 40% thought more lean meats and fish and poultry, respectively, should be included. Thirty-six percent thought more fresh fruits and juices should be included, and 47% thought more fresh vegetables were necessary for a heart healthy diet (Table 9).

The percentages of patrons that thought certain foods should be included or excluded in a heart healthy diet were

Table 9. Perceived characteristics of a heart healthy diet as reported by patrons and staff

Characteristic	Staff		Patrons	
	N	%	N	%
Foods				
Use of lowfat milk or reduced intake of dairy products	6	13	151	85
Limited intake of red meats	3	6	146	82
Increased intake of lean meats	6	13	NA	NA
Increased intake of fish/poultry	19	40	168	94
Increased intake of fruits/juices	17	36	NA	NA
Increased intake of fresh vegetables	23	47	NA	NA
Fresh foods	NA	NA	117	66
Bland foods	NA	NA	10	6
Spicy Foods	NA	NA	3	2
Nutrients or food components				
Decreased caffeine,protein and alcohol	1	2	NA	NA
Decreased calories	2	4	111	62
Increased carbohydrates	2	4	25	14
Increased protein	2	4	NA	NA
Decreased sugar	6	13	117	66
Decreased cholesterol	16	34	177	99
Decreased fat	24	49	175	98
Increased vitamins	NA	NA	76	43
Increased minerals	NA	NA	64	36
Preparation Methods				
Grilling,blanching,poaching, and stir-frying	1	2	NA	NA
Steaming	5	11	NA	NA
Elimination of frying	5	11	178	100
Broiling	8	17	142	80
Roasting/baking	9	19	NA	NA
Balanced Meals	4	9	NA	NA
Reduced portion sizes	5	11	NA	NA

as follows: increased use of fish and poultry-94%, use of lowfat milk-85%, limited use of red meats-82%, use of spicy foods-2%, and fresh foods-66%. Six percent indicated that they thought heart healthy menu items were bland.

Staff thought that several nutrients or components of foods either should be increased or limited for this diet (Table 9). Two percent thought alcohol, protein, and caffeine should be limited. Four percent thought calories should be decreased and that carbohydrate and protein respectively should be increased. Thirteen percent thought sugar should be limited and 36% indicated that fiber should be increased. Thirty-six percent, 34%, and 49% thought that sodium, cholesterol, and fat, respectively, should be limited or decreased for those following a heart healthy diet.

Patrons also indicated several nutrients or food components they thought should be increased or limited for this type of diet (Table 9). These beliefs were as follows: low sugar-66%, high fiber-64%, low cholesterol-99%, high carbohydrate-14%, high in vitamins-43%, low salt-94%, low fat-98%, high in minerals-36%, and low calorie-62%.

These answers indicated that both staff and patrons were somewhat misinformed. Inappropriate answers that were reported included spicy and bland foods, as well as foods high in protein, vitamins, and minerals.

These answers, however, were not an appropriate indicator of the degree of misinformation between these two groups due to the manner in which this question was asked. Because the staff were asked an open ended question, they were required to supply answers without any verbal prompts. Patrons, on the other hand, were provided with a list of possible answers which they were required only to check. Because of these two approaches, the disparity between these groups and the frequencies with which each item was chosen as a characteristic cannot be compared statistically. This discrepancy suggests the need for further study of this area of comparison between these two groups.

Perceived Characteristics of Menu Items Offered by the Heart's Content Program

Staff and patrons were asked to identify characteristics of foods offered by the Dine To Your Heart's Content program. This question was asked to determine if participants in the study actually understood what the program was. Forty-two percent of the patrons did not answer this question because they were not familiar with the program. Thirty-nine percent of the staff did not answer this question. Reasons may have included inadequate knowledge about these characteristics or about the program in general, although specific reasons were not given by most. One member of the staff group did, however, specifically mention not knowing what the program was.

The answers to this question fell into the same categories as answers for the question concerning characteristics of a heart healthy diet: preparation methods, specific kinds of foods, and food component or nutrient content. Staff were asked an open ended question while patrons were presented with a forced choice format. Hence, a variety of answers between the two groups resulted.

The only item that was indicated to be a characteristic of foods offered by the Heart's Content by a majority of the staff who answered this question (65%) was the item low fat foods. Thirty-eight percent and 33% of the staff also indicated that low sodium and low cholesterol foods respectively were characteristic. The remaining items were cited by fewer than 20% of the staff (Table 10).

Patrons were asked to determine acceptability of four preparation methods, in terms of the Heart's Content prgram. These methods and the percentages agreeing with each were as follows: broiling (75%), steaming(66%), poaching (44%) and the elimination of frying-95% (Table 10).

Patron choices for characteristics of foods offered by this program were related primarily to nutrients or food components (Table 10). More than 90% thought that low cholesterol and low sodium foods were characteristic. More than 70% thought foods low in fat, and more specifically, foods low in saturated fat, were characteristic of the

Table 10. Perceived characteristics of foods offered by the Heart's Content program as reported by patrons and staff

Characteristic	Staff		Patrons	
	No.	%	No.	%
Foods				
Lean meats	3	9	NA	NA
Seafood/poultry	6	18	NA	NA
Fresh fruits and juices	3	9	NA	NA
Elimination of eggs	2	6	NA	NA
Fresh vegetables	3	9	NA	NA
Bland foods	1	3	15	15
Nutrient or food component				
Decreased fat	22	65	72	70
Decreased saturated fat	NA	NA	78	76
Decreased salt	13	38	99	96
Decreased cholesterol	11	32	95	92
Increased fiber	2	6	NA	NA
Decreased sugar	2	6	57	55
Increased protein	1	3	42	41
Decreased carbohydrate	1	3	32	31
Decreased calories	1	3	NA	NA
Increased carbohydrate	NA	NA	9	9
Decreased protein	NA	NA	5	5
Preparation Methods				
Broiling	4	12	77	75
Steaming	5	15	68	66
No frying	4	12	98	95
Sauteing	1	3	NA	NA
Poaching	2	6	45	44
Baking	2	6	NA	NA
Balanced meals	2	6	NA	NA
Limited portion size	1	3	NA	NA

program. Fifty-five percent included foods low in sugar. Fewer than 50% of the patrons indicated that the remaining item choices were characteristic. One additional interesting percentage was that 15% of the patrons included bland foods as one of these characteristics.

Again, there were several items that a percentage of each group indicated were specific characteristics of foods offered by the Heart's Content program which actually were not. Staff included items such as fresh fruits and vegetables, high fiber and protein-rich foods and low carbohydrate foods. The public included such items as increased fiber, protein, and carbohydrate foods as well as decreased carbohydrate and protein foods. Although a small percentage of both groups appear to have inappropriate information, statistical comparisons relative to the degree of misinformation of these two groups cannot be made due to the two methods with which this question was asked. Again, this discrepency suggests the need for further study of this area of comparison between these two groups.

Sources of Nutritional Information

All restaurateurs and their staff were asked where they received their nutritional knowledge and how much knowledge they received from these sources. Ninety-six percent answered this question. Answers were divided into three categories: little or no knowledge, some knowledge, and

much knowledge (Table 11). Thirty-one percent indicated that magazines and family and friends were a source of much information. Thirty percent reported television as a source of some information, and 28% also received some information from both magazines and books. Family and friends was the only source reported by a majority of the staff (55%) to provide either much or some nutritional information.

Patrons also were asked to identify sources of nutritional information using four categories indicating the extent of knowledge received from each source: no, little, some, or much information (Table 12). A majority of the sample reported receiving some information from television (52%), newspapers (54%), and family and friends (54%). Over 50% of the sample reported receiving either much or some information from all sources of information except nurses and dietitians. Sixty-eight percent and 65% of patrons indicated that these sources, respectively, provided little or no nutritional information. There were no significant differences among the groups relative to how much nutritional information was provided by any one of these sources.

There were positive correlations, however, between the degree of knowledge patrons received from books and the importance placed on several menu item benefits. These correlations were as follows: low saturated fat (0.33), low

Table 11. Extent of nutritional information received from various sources as reported by staff

Source	Extent of Knowledge					
	Little/No		Some		Much	
	N	%	N	%	N	%
Doctor	36	66	8	15	10	19
Nurse	46	85	5	9	3	6
Dietitian	36	66	8	15	10	19
Magazines	22	41	15	28	17	31
Books	24	46	15	28	14	26
Newspapers	31	57	14	26	9	17
Television	29	53	16	30	9	17
Family and Friends	24	45	13	24	17	31
Other (hotel cooking school, Red Cross, work, school, health dept., reading labels, AHA)	35	64	11	21	8	15

Table 12. Extent of nutritional information received from various sources as reported by patrons

Source	Extent of Knowledge							
	No		Little		Some		Much	
	N	%	N	%	N	%	N	%
Doctor	36	21	51	29	67	38	20	12
Nurse	60	36	53	32	45	27	7	4
Dietitian	76	46	32	19	35	21	22	13
Magazines	2	1	18	11	82	48	69	40
Books	10	6	32	19	68	40	59	35
Newspapers	5	3	24	14	91	54	50	29
Television	9	5	35	21	88	52	36	21
Family and Friends	9	5	35	21	90	54	33	20
Other (School, diet clubs and programs, and reading labels)	-	-	-	-	4	27	11	73

total fat (0.31), and low cholesterol (0.31). These correlations suggested that low saturated fat, low total fat, and low cholesterol foods might be more important to patrons who receive more of their knowledge from books.

Responses indicated that at least 50% of both patrons and staff received much or some nutritional information from magazines, books, and family and friends, indicating that they were the most common sources of information for these two groups. This finding suggests that magazines and books would be appropriate vehicles for attempting to educate the public about important nutritional concepts. The importance placed on family and friends as sources of information suggests that perhaps educational programs or learning experiences should be made more available to the public, or that the public should be made more aware of existing programs. Again, the answers of these two groups could not be compared statistically due to the two methods used to ask this question.

Interviews of Restaurateurs

Perceptions of Wants and Needs of Patrons Regarding Menu Item Selection

Restaurateurs' perceptions of the size of the group of clientele who were following a heart healthy diet as well as the wants and needs of these patrons relative to menu item selection were somewhat varied. The restaurateurs did not know exactly what percentage of their patrons were following

a heart healthy diet. Most, however, were able to make estimates of this percentage (Table 13).

The majority of the restaurateurs interviewed, 88%, thought that the menu items offered through the Dine To Your Heart's Content program met the needs of their patrons following a heart healthy diet. Most thought this was true because several acceptable selections were available for most meal courses (appetizers, salads, entrees). The selections were available, leaving the decision to choose these items up to the public.

The remaining 12% of restaurateurs thought that the menu items they offered only somewhat met the needs of this group of clientele. The reason for this belief was because they found that some patrons followed stricter diets than the diet outlined by the guidelines of the AHA. They thought that their menus offered an appropriate variety of items acceptable to the AHA, but not acceptable to those following a stricter diet. There were no restaurateurs interviewed who did not believe they were meeting the needs of the majority of their clientele following a heart healthy diet.

Restaurateurs' Perceptions of Patron Questions to Waitstaff

Almost all restaurateurs were aware of questions that patrons were asking their waitstaff. Ninety-four percent believed their waitstaff often were asked questions while

Table 13. Restaurateurs' perceptions of the percentages of patrons following a heart healthy diet.

Restaurateurs indicating perceived % of patrons following a heart healthy diet		Perceived % of patrons following a heart healthy diet
N	%	
3	19	<5%
7	44	5-10%
2	12	20-30%
1	6	40%
3	19	No Idea

only 6% thought that patrons never asked questions. When waitstaff were asked about patron questions, 68% said they were asked questions and 32% reported they were not. Customer questions most often fell into two categories: questions about preparation method and portion size, and those about the content of menu items (Table 14). Twenty-nine percent of the waitstaff who were asked questions by patrons received questions concerning preparation method or portion size, such as what method could be substituted. Fifty-five percent of the waitstaff who were asked questions reported questions about the content of menu items, and most often specifically about calorie, fat, cholesterol, and sodium content. An additional 5% were asked which items were acceptable to the AHA .

Restaurateurs were asked if they thought their waitstaff were comfortable answering nutrition related questions (Figure 5). Twenty-five percent thought their waitstaff had a high degree of comfort answering questions, 63% thought waitstaff had a low degree of comfort and 12% thought that some of their waitstaff were comfortable and some were not when faced with customer questions. However, when waitstaff were asked how comfortable they felt about answering questions, 45% stated they were comfortable and only 7% were not comfortable responding to nutrition related questions.

Table 14. Number and percentage of waitstaff asked questions by patrons as reported by waitstaff

Type of Question	Frequency Asked		Frequency Not Asked	
	N	%	N	%
Explanation of preparation method or portion size	16	29	40	71
Description of menu item contents	31	55	25	45
Identification of menu items acceptable to AHAVA	3	5	53	95

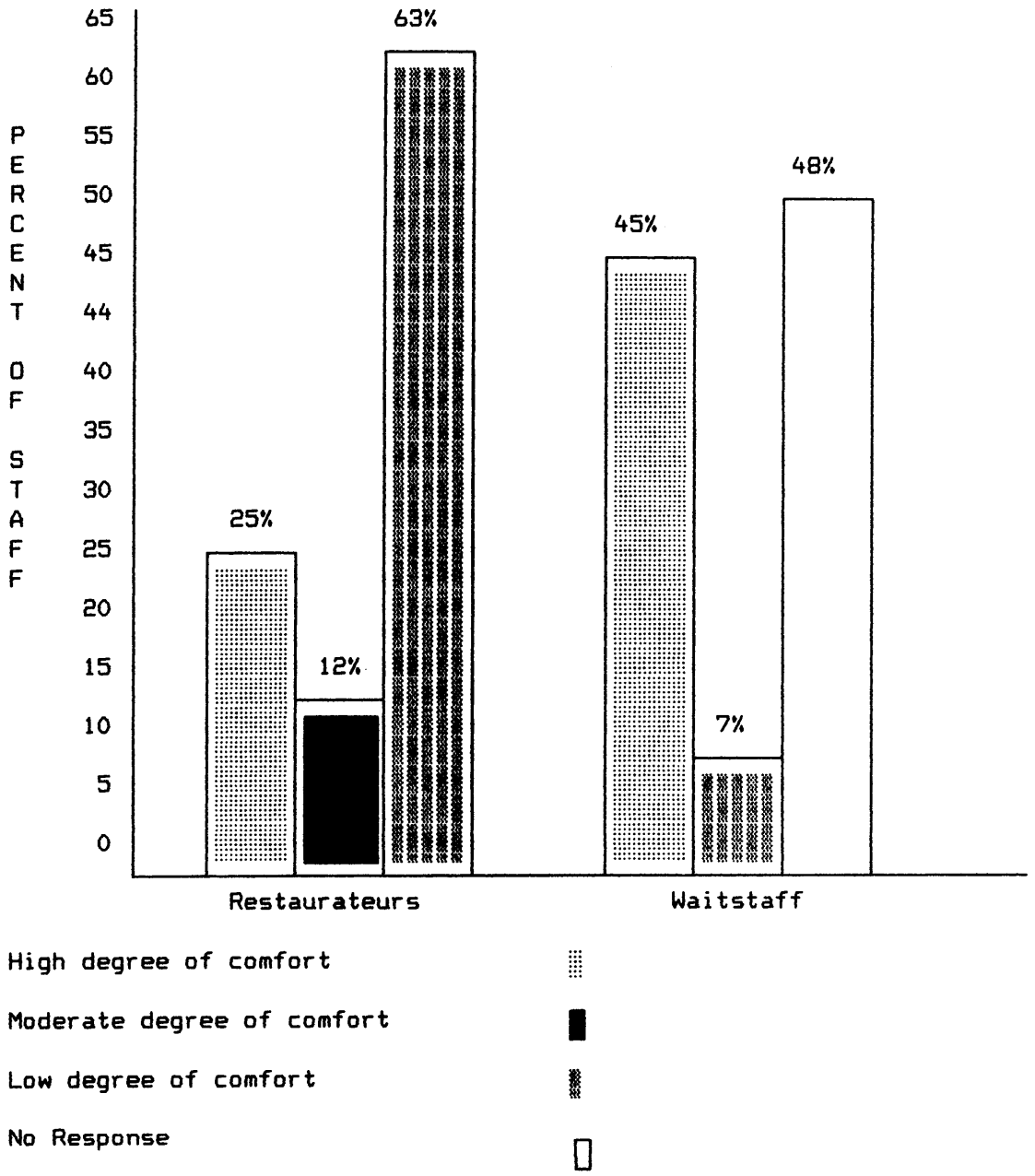

Figure 5. Perceptions of restaurateurs' and waitstaff relative to waitstaff comfort in answering questions of patrons

Thirty two percent stated they were not asked questions and the remaining 16% did not answer the question. When the restaurateurs were asked if they themselves were comfortable answering questions from patrons, 94% said yes and only 6% said no.

Perceived Educational Needs

Half of the restaurateurs who were interviewed indicated they thought their staff had inadequate nutritional knowledge to answer questions from patrons adequately. Thirty-one percent thought waitstaff did have adequate knowledge, whereas 19% thought the knowledge level of their waitstaff was moderately adequate. Forty-seven percent of the staff at these restaurants indicated they thought additional nutritional education was needed for waitstaff due to inadequate knowledge. Twenty-three percent thought they possessed adequate knowledge and 30% did not answer the question (Figure 6).

Restaurateurs were asked about existing educational programs for their waitstaff and possible supportive education from the AHA. Twenty-five percent provided some type of ongoing education for waitstaff while 75% did not. Restaurateurs were asked what method of educating waitstaff would be most appropriate (Table 15). Twenty-five percent felt that seminars and pamphlets would be the most useful.

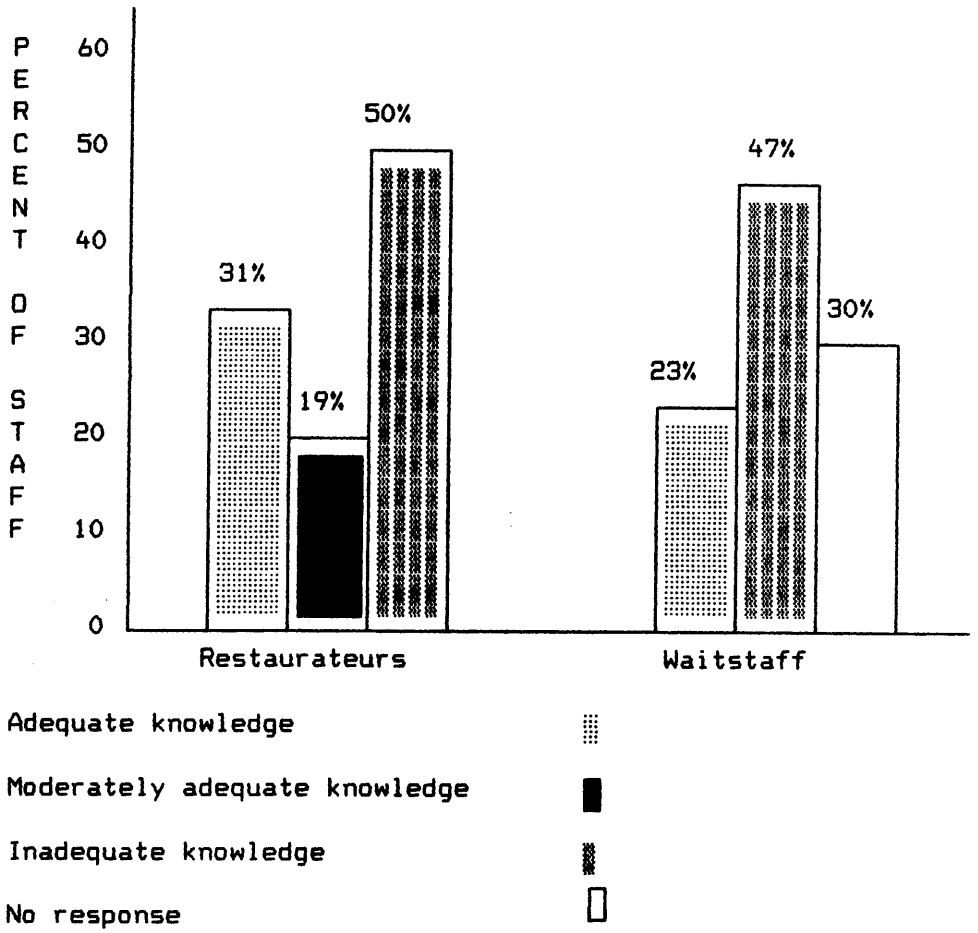

Figure 6. Perceptions of restaurateurs' and waitstaff relative to the perceived degree of nutritional knowledge of waitstaff.

Table 15. Number and percentage of restaurateurs desiring supportive continuing education from the American Heart Association*

Method of Education	N	%
Seminars	4	25
Pamphlets	4	25
Video cassettes	2	13
Inservices	1	6
Lectures	1	6
Films	1	6

*94% of all Restaurateurs indicated that some form of supportive education from AHA was needed

Fewer than 15% indicated the remaining methods would be useful.

Perceived Advantages and Disadvantages of The Heart's Content Program

Restaurateurs indicated that there were advantages to the Dine To Your Heart's Content program for both themselves and their patrons. They also disclosed several disadvantages (Table 16). Thirteen percent of those interviewed thought that their cost was increased due to a necessary increase in labor caused by the program. Nineteen percent stated that several inventory items, such as lowfat milk, were impractical to keep on hand because the item was seldom requested. This disadvantage also raised costs somewhat because of the waste involved.

Nineteen percent of restaurateurs thought that waitstaff training was difficult because of both the time involved and the difficulty in determining the best method for delivering material to waitstaff. Nineteen percent also thought that the menu markers and table tents were not practical and that the program drew negative attention to some menu items. Depending on the patron point of view, menu items that were not marked, and thus, "not healthy" could be considered negatively. However, menu items that were marked could be considered by some of the public to be only for people with heart problems, also drawing negative attention. Table

Table 16. Advantages and disadvantages of the Heart's Content program as perceived by restaurateurs

Advantage/Disadvantage	Number and Percent of Restaurateurs	
	N	%
Disadvantages		
Increased production costs	2	13
Impractical inventory items	3	19
Difficulties with staff training	3	19
Impractical menu markers and table tents	3	19
Negative attention to menu items	3	19
Communication problems with local affiliates	5	31
Advantages		
Public Education	1	6
Increased menu item selection for those following a heart healthy diet	8	50
Unique characteristic of restaurant	2	13
Increased respect and image of restaurant	1	6
Advertising tool	4	25
Public service	8	50
Increased market share	6	38
Improved public relations	8	50

tents were often in the way and had food and liquid spilled on them resulting in the need for frequent replacement. Menu markers were considered a disadvantage because of the increased cost of printing menus or the impracticality of using stickers or stamps provided by the AHA. Several restaurateurs stated that the stamps and stickers did not look professonal and thus, were not acceptable.

Five of the restaurateurs stated difficulty in working with their local affiliate of the AHA as one of the greatest disadvantages of the program. Four of the restaurants were in Richmond and one was in the southwestern area of Virginia. These restaurateurs thought there was poor communication between themselves and the representatives of the local affiliates. Representatives could not be reached to answer questions, requested materials were not sent to restaurants, and representatives were failing to evaluate new menu items to see if they were acceptable according to guidelines of the AHA. Thirty one percent of the restaurateurs perceived this lack of communication to be the greatest disadvantage of participating in this program. None of those interviewed saw any disadvantage in the program for their patrons.

Advantages of the Heart's Content program as Perceived Restaurateurs

Restaurateurs saw advantages in the program for both themselves and their patrons (Table 16). Six percent saw

the program as a means for educating the public about heart health. The greatest advantages to patrons, as indicated by 50% of the restaurateurs who were interviewed, were the increased availability of acceptable menu items to those who followed a heart healthy diet, the chance to provide a public service, and the chance to improve public relations. The additional menu items allowed their patrons not only to enjoy themselves when dining out by being able to order acceptable menu items, but also allowed them to feel better about themselves.

There were several other advantages of the Heart's Content progam. Thirteen percent of restaurateurs thought the program offered the opportunity to be unique when compared to the majority of other restaurants in their areas. Six percent thought the program increased the respect and image of the restaurant. Twenty-five percent saw an advantage in that the program and the AHA could be used as a promotional tool. One of the biggest advantages of participating in the program involved the increased market share these restaurants have. Thirty-eight percent of those interviewed thought they were reaching a greater segment of the population by offering menu items in compliance with the dietary guidelines of the AHA.

Profitability of Menu Items Offered by the Heart's Content Program

While 38% of restaurateurs thought the program was

advantageous because they were reaching a larger segment of the population, most Heart's Content menu items were not considered any more profitable than regular menu items. Twelve and a half percent had no idea how profitable the program items were and 12.5% thought that the marked items were more profitable. The majority, 75%, saw the same profit level from the marked items as from the regular items, indicating this was another possible advantage to participating in the program.

Reasons for Participating in the Heart's Content Program

Restaurateurs who were interviewed had been participating in the Heart's Content program between one and three years. The length of time with the program did not influence overall satisfaction with the program. Dissatisfaction appeared to result more from lack of communication with local affiliates, regardless of length of time with the program.

Restaurateurs gave several reasons for deciding to participate in this program (Table 17). Thirteen percent joined the program because they were personally health conscious, they wanted to follow the current trends, or thought it would be good for the image of the restaurant. Twenty-five percent thought it would be a good business tactic, resulting in an increased market share. Being a

Table 17. Reasons for participating in the Heart's Content program

Reason	Number and Percent of Restaurateurs	
	N	%
Personal health reasons	2	13
To follow current trends	2	13
Increase image of restaurant	2	13
Business Tact	4	25
Public Service	5	31
Professional Move	8	50
Ease of Participation	11	63

service to the public was important to 31% of those interviewed. Fifty percent of restaurateurs saw joining the program as a professional move. The majority, 63%, joined with the program because at the time they felt it was easy to participate. Most restaurateurs acknowledged that they lacked adequate nutritional knowledge to set up their own program. The Dine To Your Heart's Content program was easy for many to participate in for this reason, although several restaurants also had menu items that were already in compliance with the dietary guidelines of the AHA, so that few changes were required.

SUMMARY AND CONCLUSIONS

The "Dine To Your Heart's Content" program, sponsored by the American Heart Association, was evaluated from the points of view of both restaurateurs and patrons. Sixteen of twenty-one restaurateurs who were asked to participate in the Heart's Content program agreed to be interviewed. The purpose of this program is to assist the public in changing unhealthy eating habits or maintaining appropriate eating habits by helping food service operations provide menu items with reduced Calories, fat, cholesterol, and sodium according to dietary recommendations of the AHA (3, 6, 64). Information about this program, including perceived advantages and disadvantages, and the need for nutritional education, as well as the extent of knowledge of food composition was obtained from patrons and restaurateurs through questionnaires, tests, and interviews.

Patrons reported dining out more frequently for lunch than for either breakfast or dinner. Based on this finding, it can be suggested, perhaps, that restaurateurs place slightly more emphasis on the Heart's Content program at this time. This emphasis could occur in several ways, such as additional promotion of specific menu items in compliance with the dietary guidelines of the AHA during the time when lunch is being served. An increased number of acceptable menu items available at lunch may also be an appropriate

strategy for some restaurateurs since the public appeared to be dining out more at lunch.

This finding suggests another area for future research. It would be beneficial to ascertain what types of restaurants the public most often frequents at lunch to determine if these restaurants offer the Heart's Content program. These restaurants would be important target restaurants for the AHAVA to recruit for this program if they were not currently participating.

Fifty-one percent of all patrons who were surveyed were not aware that the Heart's Content program was offered at the restaurant where they were contacted. This finding suggests that better promotion of the program is needed. Fifty percent of those patrons who were familiar with the Heart's Content program ate in restaurants offering this program less than 25% of the time that they dined out. This finding suggests that to increase this percentage, more restaurants should be offering this program. More restaurants should be approached by the AHAVA to increase participation in the program.

The most commonly reported wants and needs relative to menu item selection included more seafood and poultry selections, foods with reduced amounts of fat and sodium, and foods prepared by methods such as baking, broiling, or

grilling. Nearly 70% of patrons also indicated a moderate to high liklihood of trying heart healthy menu items such as poultry without skin, lean meats, and broiled or baked fish. These findings may have several implications. First, there appear to be a need for more menu items that would be in compliance with the guidelines of this program since these wants and needs reflected characteristics of foods offered by the program. Secondly, promotion of the program, perhaps, could be improved to make the public more aware of the program and of the foods being offered.

Twenty-five percent of patrons who participated in the study ordered heart healthy menu items at the meal when they were contacted. An additional 24% ordered menu items with basic ingredients that were acceptable according to program standards (i.e. poultry) but contained additional unacceptable ingredients (i.e. cream) or were prepared by an unacceptable method (i.e. frying). This finding, along with patrons' self reported health related wants and needs regarding menu item selection, supports the suggestion that restaurateurs should offer an increased number of menu items in compliance with the program. Since the basic ingredients in the menu items ordered were in compliance with the guidelines for 24% of the patrons, only minor ingredients or cooking methods would have to be altered for the item to become acceptable. This is a relatively easy method of

increasing the number of acceptable menu items available.

Patrons were asked to report how beneficial they perceived the Heart's Content program to be. Slightly more than one fourth of those patrons familiar with the program (26%) indicated the program was very beneficial. The largest proportion of patrons (40%) indicated the program was somewhat beneficial. The remaining 34% thought the program provided little or no benefit. These data indicate that the majority of the sample perceived that they receive an appreciable amount of benefit from the program. Additional education or further research to determine how to make this program more beneficial or acceptable, might be directed toward the 34% who thought they derived little or no benefit from the program.

Data from this research indicated that those patrons concerned with heart health made more menu choices for health related reasons than did patrons with little or no self reported interest in heart health. Some of this lack of interest might be due in part to inadequate knowledge relating to diet and heart health. If this supposition was true, then nutritional education should be directed at this segment of the population to increase awareness about this subject, possibly resulting in more patrons making menu choices for health related reasons.

Nutritional knowledge scores of both patrons and those

involved in the restaurant business indicated a relatively low level of knowledge of both groups relative to fats and oils. Out of a possible 13 points, the average score was 6.09. This information indicated that both groups need more education regarding this subject. Several methods of education may be appropriate for educating the public as a whole.

Waitstaff, restaurateurs, and patrons indicated that a greater percentage of their nutritional information came from books, magazines, and family and friends. This data indicates that books and magazines should be used as a principal vehicle for educating the public regarding heart health. Additional health related programs or learning experiences should be made available to the public or existing programs should be promoted more thoroughly so the public was aware of them. Dietitians were cited most often as a source from which little or no nutritional information was received. This finding suggested perhaps that dietitians should become more involved in public education since their professional education prepares them uniquely for the role of nutrition experts.

In addition to these methods of education, restaurateurs suggested several methods of educating waitstaff that they thought should be provided by the AHAVA. Ninety-six percent of restaurateurs indicated additional

nutritional information was needed from the AHAVA. The most commonly suggested methods of education included seminars and pamphlets. Other methods included video cassettes, inservices, lectures, and films.

Several disadvantages of the Heart's Content program were revealed during interviews with restaurateurs. The major disadvantage appeared to be a lack of communication of local affiliates with restaurateurs. Specific problems resulted from this lack of communication. For example, when restaurateurs needed printed materials normally provided by their affiliate, or needed questions answered, representatives could not be reached and did not provide requested materials. Furthermore, when restaurateurs changed their menus, representatives could not be reached to evaluate menu items for acceptability to the program. This last problem resulted in few menus for these restaurants being marked.

This last disadvantage probably is related to why only 49% of patrons indicated an awareness of the program offered at the restaurant where they were contacted. If more menus were marked, then more patrons may have noticed the program, possibly taking advantage of it. If this lack of communication was eliminated, possible advantages for both public and restaurateurs would result.

Overall advantages of the Heart's Content program

existed for both patrons and restaurateurs. Major advantages as perceived by restaurateurs included "increased menu item selection for those following a heart healthy diet", "public service", and "improved public relations". Other advantages included "increased market share," "advertising tool", and "method of public education".

The preceding results are tentative due to the limitations of the study such as the limited resources available to the researcher, an overall response rate from patrons of 31%, and the inability or unwillingness of 10 (38%) restaurateurs to participate in the study. Additionally. this study was included as a part of a larger study which more thoroughly addressed overall dining behaviors of consumers. One questionnaire addressing the study as a whole was sent to patrons (Appendix K) although only portions of this questionnaire (Appendices G and H) were analyzed for the smaller study addressing the "Dine To Your Heart's Content" program. Because of these limitations, follow-up studies of the "Dine To Your Heart's Content" program, with emphasis on additional geographical areas and increased attempts to secure responses from patrons, are indicated.

The most prominant findings of this research appear to involve communication channels between restaurateurs and AHAVA representatives, and nutritional education for the

public. Better methods of communication between restaurateurs and representatives need to be developed. There might also be opportunities available to educate the public regarding heart health. For example, the public could be made aware of foods that are acceptable and unacceptable for those concerned with heart health through awareness and understanding of this program. Dietitians, as nutrition experts, should become increasingly involved in this area. Better communication with restaurant personnel and increased public nutritional education could possibly result in increased support of the "Dine To Your Heart's Content" program by the dining out public.

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APPENDIX A

Locations and Categories of Restaurants Included in the Study

Catetory	Location		
	Richmond	Blue Ridge	Southwestern
Upscale/luxury	La Petite France Capri Omars		
Atmosphere/ Specialty	Tobacco Co. Peking Pavilion Jaspers La Siesta Extra Billys Nielsons	Garden Gourmet	Bogens Fiji Island Martha's Vineyard First Street
Midscale/ Family		Carries Cafeteria	Roanoker

APPENDIX B

Follow up Letter to Restaurateurs

Dear _____:

Thank you for your response to our recent telephone conversation regarding the "Dine To Your Heart's Content" program. A number of restaurateurs in _____, like yourself, have expressed an interest in participating in this study.
At no cost to you, we hope to provide:

1. Measures of customer satisfaction with the "Dine To Your Heart's Content" program.
2. Potential sales volume levels for "Dine To YOur Heart's Content menu items, as well information on how to increase sales of these items.
3. A measure of waitstaff proficiency in guiding patron selection of "Dine To Your Heart's Content menu items.

While these benefits necessitate some involvement with your restaurant, the inconvenience and time demands to either you, your waitstaff, or patrons will be minimal. The items listed below outline our responsibilities in the study. We will need to:

1. Generate a sampling mailing list of your patrons. This would involve our presence at 1-2 meal periods, for one hour each, at which time we would obtain address cards from willing patrons. Subsequently, these patrons will receive a mail questionnaire from us.
2. Administer a nutritional awareness questionnaire to a sample of your waitstaff.
3. Interview you regarding your perceived value of the "Dine To Your Heart's Content" program in your business.

The information we receive from all restaurateurs, waitstaff, and patrons participating in this study will be confidentially gathered and analyzed. Upon completion of this process, the results will be shared with you. Additional information concerning specific nutritional dining behaviors of your patrons could be obtained by participating in a promotional program. We will be contacting you within the week to receive your affirmation of participation in this study.

Sincerely,

Appendix C

CENTER FOR HOSPITALITY RESEARCH
Study on Consumer Dining Behaviors*

Please Print:

Name:_____

Address:_____

City:_____ State:_____ Zip_____

Which menu items did you order today?_____

_____

*Mail questionnaires will be sent to participants

Appendix D

Days and Meals During Which Restaurants Were Visited

Meals	Days				
	Tues.	Wed.	Thurs.	Fri.	Sat.
Lunch	6	7	2	1	0
Dinner	3	5	0	3	5

Appendix E

Date

After talking with you while dining out, we sent a questionnaire seeking information about patron dining behaviors. You should have received that questionnaire recently.

If you have already completed and returned it to us, please accept our sincere thanks. If not, please do so today. Because it has been sent to only a select sample of Virginia restaurant patrons, it is extremely important that your responses be included in the study in order to help us know what types of food and service are important to you.

Again, thank you very much for your willingness to participate.

Sincerely,

Appendix F

Consumer Behavior Questionnaire

1. How often do you eat out for each meal?

	Breakfast	Lunch	Dinner
Less than once/week	_____	_____	_____
1-2 times/week	_____	_____	_____
3-4 times/week	_____	_____	_____
5 or more times/week	_____	_____	_____

2. How often do you eat at the restaurant where you were contacted?
   _____Less than once/week
   _____1-2 times/week
   _____3-4 times/week
   _____5 or more times/week

3. Below are reasons you may have had for eating at this restaurant. Rate each reason on the scale provided below.

	Very Unimportant				Very Important
Quick service	1	2	3	4	5
Conveniently located	1	2	3	4	5
Special occasion like birthday	1	2	3	4	5
Food is excellent	1	2	3	4	5
Price	1	2	3	4	5
Atmosphere	1	2	3	4	5
Business luncheon	1	2	3	4	5
Restaurant offered a discount	1	2	3	4	5
The menu features a good selection of items that meet a variety of needs	1	2	3	4	5
The management accomodates personal requests	1	2	3	4	5
Recommended by a friend or family member	1	2	3	4	5
Traveling	1	2	3	4	5

4. When you dine out, how often do you choose memu items for health-related reasons?
   _____Never
   _____Rarely
   _____Often
   _____Always

5. Rate each of the following reasons for their importance to you when choosing menu items for health related reasons (for example, weight loss, high blood pressure, or heart condition)

	Very Unimportant				Very Important
Doctor's recommendation.....	1	2	3	4	5
Interest in prevention of heart disease.....	1	2	3	4	5
Family history of heart disease.....	1	2	3	4	5

6. If your doctor has recommended that you follow a modified diet, what kind of diet was recommended, and why?

_____

7. How many menu items at the restaurant where you were contacted meet your health-related needs?

_____Many menu items meet my needs
_____Several menu items meet my needs
_____Few menu items meet my needs
_____No menu items met my needs

8. What additional foods would you like to see offered that would meet your health related needs?

_____

9. Many restaurants offer heart healthy menu items through the "Dine To Your Heart's Content program sponsored by the American Heart Association. Were you aware that this restaurant offers this program?

_____Yes
_____No

10. How often do you dine at restaurants featuring the "Dine To Your Heart's Content" program?

_____100% of the time
_____75% of the time
_____50% of the time
_____25% of the time
_____Less than 25% of the time

11. How beneficial is the "Dine To Your Heart's Content" program to you?

_____Very beneficial
_____Somewhat beneficial
_____Slightly beneficial
_____Not beneficial
_____Not aware of "Dine To Your Heart's Content" menu items.

12. As you understand it, what are the characteristics of menu items featured on the "Dine To Your Heart's Content" program? Check all that apply.

_____low salt
_____low total fat
_____low saturated fat
_____low sugar
_____low carbohydrates
_____high carbohydrates
_____low cholesterol
_____low protein
_____high protein
_____fried foods
_____steamed foods
_____broiled foods
_____poached foods
_____bland foods

13. The following foods represent menu items that some restaurants offer their patrons. If available, how likely would you be to try each one?

	Very Unlikely			Very Likely
Calorie controlled entree	1	2	3	4 5
Food cooked without salt	1	2	3	4 5
Low fat, low calorie fruit based desserts	1	2	3	4 5
Reduced calorie salad dressings	1	2	3	4 5
Lean meats	1	2	3	4 5
Poultry without skin	1	2	3	4 5
Cereal served with skim milk or low fat milk	1	2	3	4 5
Low cholesterol egg substitute	1	2	3	4 5
Lowfat cottage cheese	1	2	3	4 5
Broiled or baked fish	1	2	3	4 5
Broiled or baked seafood	1	2	3	4 5

14. When selecting menu items, which of the following benefits do you look for in the foods you order? Rate each benefit as to its importance to you on the scale below.

	Very Unimportant			Very Important
Low total fat	1	2	3	4 5
Low saturated fat	1	2	3	4 5
Low cholesterol	1	2	3	4 5
Low salt	1	2	3	4 5
Low calorie	1	2	3	4 5

15. How old are you?

_____18-24 _____45-54
_____25-34 _____55-64
_____35-44 _____65 or older

16. Please check the category which best represents your total family yearly income.

_____Less than $5,000 _____$25,000-$29,999
_____$5,000-$8,999 _____$30,000-$39,999
_____$9,000-$14,999 _____$40,000-$49,999
_____$15,000-$19,999 _____$50,000 or more
_____$20,000-$24,999

17. Are you

_____female
_____male

18. Please check the highest level of education you have completed.

_____Grade school
_____High school
_____Less than 4 years of college
_____4 years of college
_____Graduate

APPENDIX G

Test of Knowledge of Food Composition

1. As you understand it, what are the characteristics of a heart healthy diet? Check all that apply.

_____low sugar
_____high fiber
_____low cholesterol
_____high carbohydrates
_____high in vitamins
_____bland foods
_____low salt
_____more broiled foods
_____increased use of whole milk
_____more fish and poultry
_____increased use of red meats
_____low fat
_____low calorie
_____fresh foods
_____high in minerals
_____decreased use of red meats
_____increased use of lowfat milk
_____spicy foods
_____decreased use of fish and poultry
_____increase use of fried foods

2. Comparison of butter and margarine. Check the answer you feel is correct.

a. Which product provides mor calories?
_____Butter
_____Margarine
_____Both provide the same amount

b. Which contains more cholesterol?
_____Butter
_____Margarine
_____Both provide the same amount

c. Which provides more polyunsaturated fat?
_____Butter
_____Margarine
_____Both provide the same amount

3. Check all of the following cheeses you think are low-fat cheeses.

_____Cheddar
_____Gouda
_____Low-fat cottage cheese
_____Mozzarella, part skim
_____American
_____Swiss
_____Weight Watcher's Cheese
_____Ricotta

4. Check all of the following products you think are high in polyunsaturated fats.

_____Butter
_____Safflower oil
_____Margarine made from liquid vegetable oil
_____Coconut oil
_____Sunflower oil
_____Soybean oil
_____Canola oil
_____Lard
_____Palm oil
_____Corn oil
_____Solid vegetable shortening

5. Check the following methods of preparing meat, fish, or poultry, that would be acceptable for a heart-healthy diet.

_____Broiling
_____Sauteing
_____Baking
_____Roasting
_____Poaching
_____Deep-fat frying
_____Steaming

6. Which one of the following ingredients should be listed as the first ingredient for a margarine that is acceptable for a heart-healthy diet?

_____Partially hydrogenated soybean oil
_____Liquid corn oil
_____Liquid coconut oil
_____Partially hydrogenated palm oil

7. Which of the following dairy products would be acceptable in terms of cholesterol and saturated fat, for a heart-healthy diet?

_____Whole milk
_____2% milk
_____1% milk
_____Creamer made from coconut oil
_____Low-fat yogurt
_____Creamer made from vegetable oil
_____Cream
_____Skim milk
_____Sour cream
_____Buttermilk

8. Check all of the following foods that you think would be acceptable on a low cholesterol diet.

_____Fried chicken
_____Baked chicken
_____Filet mignon
_____80% lean ground beef
_____Fried shrimp
_____Sauteed shrimp
_____Peanut butter
_____70% lean ground beef

9. Which of the following vegetable items do you feel are acceptable for a heart healthy diet?

_____Steamed broccoli
_____broccoli with hollandaise sauce
_____creamed carrots
_____French fried potatoes
_____herb-seasoned green beans
_____scalloped potatoes
_____Caesar salad

10. How much nutritional knowledge have you acquired from the following sources?

	Much Information	Some Info	Little Info	No Info
Doctor	_____	_____	_____	_____
Nurse	_____	_____	_____	_____
Dietitian	_____	_____	_____	_____
Magazines	_____	_____	_____	_____
Books	_____	_____	_____	_____
Newspapers	_____	_____	_____	_____
Television	_____	_____	_____	_____
Family and Friends	_____	_____	_____	_____
Other (please specify)	_____	_____	_____	_____

APPENDIX H

Cover Letter for Patrons

Date

Dear Survey Participant:

Thank you for giving us your name recently at _____ in _____ for participation in a marketing study of restaurant menu items.

The questionnaire enclosed will help us know what types of food and service are important to you. Your help in this survey will aid restaurant owners in providing the products and services that you and other patrons desire. We request that you return your completed questionnaire as soon as possible to aid us in processing your data.

The Center for Hospitality Research is a not-for-profit educational organization committed to protecting your confidentiality and privacy. Should the Center desire more information from you in the future, you will first be contacted for your consent before any additional information is sent to you.

If you would like to receive a summary of this research, please include your name and address at the end of the enclosed questionnaire.

Again, thank you very much for your willingness to participate.

Sincerely,

APPENDIX I

Restaurateur Interview Questions

1. What are characteristics of a heart-healthy diet?

2. What percent of your patrons do you think are following a "heart-healthy" diet due to the advice of a physician? What percentage of this group do you think order menu items appropriate for this type of diet?

3. Do you think that the "Dine To Your Heart's Content" menu items meet the needs of those patrons following a "heart-healthy" diet?

4. What do you think are some advantages, to both you and your patrons, of the "Dine To Your Heart's Content" program?

5. What do you think are some disadvantages of the program?

6. Do patrons ever ask your staff for help in selecting menu items for health-related reasons? What kinds of questions are asked? Do you think your staff feels comfortable answering these questions? Did you, or would you, feel comfortable answering patron questions?

7. Do you think your staff has adequate education in nutrition to be prepared to answer patron questions? Do you have ongoing training for new waitstaff and continuing education for present staff? Do you think there is a need for supportive, ongoing promotions from the Virginia Affiliate of the AHA (i.e. literature, tapes)?

8. How long have you been participating with the program? Why did you decide to implement this program rather than simply make "general" changes in certain menu items, such as calorie controlled?

9. How profitable are the Dine To Your Heart's Content menu items compared to standard items?

APPENDIX J

Percent of Patron Response to the Mail Questionnaire in Each Area of Virginia

Area	#sent out	# returned	%returned
Richmond			
Tobacco Company	42	19	45
La Petite France	15	6	40
Peking Pavilion	25	13	52
Jaspers	47	11	23
La Siesta	55	10	18
Capri	35	11	31
Omars	24	13	54
Extra Billys	52	8	15
Nielsons	42	16	38
Southwestern			
Roanoker	27	10	37
Bogens	51	26	51
Fiji Island	14	5	36
Martha's Vineyard	20	7	35
First Street	41	15	37
Blue Ridge			
Carries Cafeteria	71	26	37
Garden Gourmet	21	6	29
Totals	580	202	35

APPENDIX K
PATRON DINING QUESTIONNAIRE

This first section of questions relate to your eating habits and preferences both at home and away from home.

1. How often do you eat out at each meal?

	Less than 1x/week	1-2 x/week	3-4 x/week	5 or more x/week
Breakfast	_____	_____	_____	_____
Lunch	_____	_____	_____	_____
Dinner	_____	_____	_____	_____

2. On the average, how many times in the last month did you patronize the following types of restaurants?

	Last Month
Fast-food (McDonalds, Wendy's, etc.)	_____
Family style (Bonanza, Bob's Big Boy, etc.)	_____
Theme/Novelty (Tobacco Co., Victoria Station, etc.)	_____
Ethnic (Chinese, Italian, etc.)	_____
Employee or Student Cafeteria	_____
Any Other (7-Eleven, Deli, etc.)	_____

3. On the average, how many times in the last three months did you patronize a "fine dining restaurant" ($20-30/person, excluding drinks)? _____

4. How often do you eat at the restaurant where you were contacted?
   Less than once/week _____
   1-2 times/week _____
   3-4 times/week _____
   5 or more times/week _____

5. Below are reasons you may have had for eating at this restaurant. Rate each reason on the scale provided below. (1 = very unimportant, 5 = very important)

	Very Unimportant				Very Important
Quick service	1	2	3	4	5
Conveniently located	1	2	3	4	5
Special occasion like birthday	1	2	3	4	5
Food is excellent	1	2	3	4	5
Price	1	2	3	4	5
Atmosphere	1	2	3	4	5
Business luncheon	1	2	3	4	5
Restaurant offered a discount	1	2	3	4	5
The menu features a good selection of items that meet a variety of needs	1	2	3	4	5
The management accommodates personal requests	1	2	3	4	5
Recommended by a friend or family member	1	2	3	4	5
Traveling	1	2	3	4	5

6. On the scale provided below, please indicate how well the following statements describe your eating behavior most of the time. (1 = very undescriptive, 5 = very descriptive)

	Very Undescriptive				Very Desc.
I often skip at least one meal each day	1	2	3	4	5
I pay attention to the nutritional content of the food I eat	1	2	3	4	5
I pay attention to the caloric content of the food I eat	1	2	3	4	5
I'm a "meat and potatoes" person	1	2	3	4	5
I eat what I want whenever I feel like it	1	2	3	4	5
I prefer to eat many small meals or snacks throughout the day rather than the standard three full meals a day	1	2	3	4	5

7. Please indicate how strongly you agree or disagree with the following statements.

	Strongly Disagree				Strongly Agree
Fresh fruit and vegetables are more nutritious and therefore a better value for my money than frozen or canned fruits and vegetables	1	2	3	4	5
Foods prepared from scratch are better for me than processed foods	1	2	3	4	5
Being in good physical condition is important to me	1	2	3	4	5
Snacking is basically OK as long as I eat healthy foods	1	2	3	4	5
A health oriented diet and moderate exercise play a role in the prevention of serious illnesses such as cancer, diabetes, heart disease	1	2	3	4	5
Three regular meals a day are essential for my health	1	2	3	4	5
Watching calories is an essential part in controlling my weight	1	2	3	4	5
I am drinking less alcohol when I eat out than I did two years ago	1	2	3	4	5
Foods I choose in restaurants generally reflect the way I eat at home	1	2	3	4	5
Restaurants use too much salt in their cooking	1	2	3	4	5
A food is of higher quality if the ingredients are natural not artificial	1	2	3	4	5
When eating out for special occasions (i.e. birthday) I am less concerned about nutrition and my health	1	2	3	4	5
Alcohol if used, should be used in moderation for health reasons	1	2	3	4	5
Even though butter contains cholesterol it is better for me than margarine that contains stabilizers and artificial ingredients	1	2	3	4	5
It is important to take regular supplements of vitamins and minerals like vitamin C, iron and calcium	1	2	3	4	5
Alcohol if used, should be used in moderation because of the risk of driving intoxicated	1	2	3	4	5
Eating a balanced diet includes following the basic four food groups	1	2	3	4	5
Getting enough fiber in my diet is important to me	1	2	3	4	5
My diet contains enough vitamins and minerals without taking supplements	1	2	3	4	5
Soft drinks with either nutra sweet or sacchrine are my choice when available	1	2	3	4	5
By avoiding certain foods containing high fat, high sugar or high salt, I can decrease my risk of getting heart disease and diabetes	1	2	3	4	5
Perservatives decrease the quality of food	1	2	3	4	5
Beverages without caffeine such as sanka and 7-UP are my choice when available	1	2	3	4	5

8. When you dine out, how often do you choose menu items for health-related reasons (for example, weight loss, fitness, nutritional concerns, high blood pressure, heart condition, or diabetes)?

_____ Always
_____ Often
_____ Occasionally
_____ Rarely
_____ Never

9. Rate each of the following reasons for their importance to you when choosing menu items for health-related reasons.

	Very Unimportant				Very Important
Doctor's recommendation	1	2	3	4	5
Interest in weight loss	1	2	3	4	5
Interest in prevention of heart disease	1	2	3	4	5
Religious convictions	1	2	3	4	5
Personal wellness	1	2	3	4	5
Family history of heart disease	1	2	3	4	5
Interest in nutrition	1	2	3	4	5
Family history of diabetes and/or cancer	1	2	3	4	5

10. If your Doctor has recommended that you follow a modified diet, what kind of diet was recommended, and why?

_____

11. How many items at the restaurant where you were contacted meet your health-related needs?
    _____ Many menu items meet my needs.
    _____ Several menu items meet my needs.
    _____ Few menu items meet my needs.
    _____ No menu items met my needs.

12. What additional foods would you like to see offered that would meet your health related needs?

    _____

13. Many restaurants offer heart-healthy menu items through the "Dine to Your Heart's Content" program sponsored by the American Heart Association. Were you aware that this restaurant offers this program?
    _____ Yes
    _____ No

14. How beneficial is the "Dine to Your Heart's Content" program to you?
    _____ Very beneficial
    _____ Somewhat beneficial
    _____ Slightly beneficial
    _____ Not beneficial

15. How often do you dine at restaurants featuring the "Dine to Your Heart's Content" program?
    _____ Less than 25% of the time
    _____ 25% of the time
    _____ 50% of the time
    _____ 75% of the time
    _____ 100% of the time

16. As you understand it, what are the characteristics of menu items featured on the "Dine to Your Heart's Content" program? Check all that apply.

_____ low salt	_____ low protein
_____ low total fat	_____ high protein
_____ low saturated fat	_____ fried foods
_____ low sugar	_____ steamed foods
_____ low carbohydrates	_____ broiled foods
_____ high carbohydrates	_____ poached foods
_____ low cholesterol	_____ bland foods

The next three questions relate to new products and services that restaurateurs are currently evaluating for customer desirability.

17. The following foods represent menu items that some restaurants offer their patrons. If available, how likely would you be to try each one?

	Very Unlikely				Very Likely
Raw vegetable appetizer	1	2	3	4	5
Calorie controlled entree	1	2	3	4	5
Food cooked without salt	1	2	3	4	5
Whole wheat breads, rolls or crackers	1	2	3	4	5
Vegetables seasoned only herbs or lemon juice	1	2	3	4	5
Low fat, low calorie fruit based desserts	1	2	3	4	5
Reduced calorie salad dressing	1	2	3	4	5
Lean meats	1	2	3	4	5
Steak or roast beef	1	2	3	4	5

17. (continued)

	Very Unlikely				Very Likely
Fried chicken	1	2	3	4	5
Rich, gooey or chocolate desserts	1	2	3	4	5
Poultry without skin	1	2	3	4	5
Cereal served with skim milk or lowfat milk	1	2	3	4	5
Whole grain muffins	1	2	3	4	5
Whole grain pancakes or waffles	1	2	3	4	5
Low cholesterol egg substitute	1	2	3	4	5
Fresh fruit	1	2	3	4	5
Lowfat cottage cheese	1	2	3	4	5
Bagel or breads with lowfat cream cheese	1	2	3	4	5
Sugar substitute	1	2	3	4	5
Regular soft drink	1	2	3	4	5
Diet soft drink	1	2	3	4	5
Caffeine-free soft drink	1	2	3	4	5
Caffeine-free coffee	1	2	3	4	5
Broiled or baked fish	1	2	3	4	5
Broiled or baked seafood	1	2	3	4	5
Fried fish	1	2	3	4	5
Fried seafood	1	2	3	4	5
Premium ice cream (no artificial ingredients)	1	2	3	4	5
Fruit ices or sorbet	1	2	3	4	5
Low alcohol beverages	1	2	3	4	5
Meatless entrees such as pasta primavera	1	2	3	4	5
Premium juices such as fresh squeezed citrus or berry juices	1	2	3	4	5

18. Rate the following service options that some restaurants are considering offering as to their importance or interest to you.

	Very Unimportant				Very Important
Smaller portions of menu items with price reflection	1	2	3	4	5
Tableside preparation	1	2	3	4	5
Nutritional information on menus	1	2	3	4	5
Access to information on ingredients in menu items	1	2	3	4	5
Non-smoking sections	1	2	3	4	5
Preparation options such as steaming or poaching vs. frying	1	2	3	4	5
Flexibility in preparing variations on the menu to accommodate tastes or needs	1	2	3	4	5
Salad, vegetable, and fruit bars	1	2	3	4	5
Sauces and dressings to the side	1	2	3	4	5
Menu items featuring approval by organizations such as the American Heart Association, American Cancer Society, or Weight Watchers	1	2	3	4	5

19. When selecting menu items, which of the following benefits do you look for in the foods you order. Rate each benefit as to its importance to you on the scale below.

	Very Unimportant				Very Important
Fresh	1	2	3	4	5
Natural	1	2	3	4	5
Unrefined	1	2	3	4	5
Low total fat	1	2	3	4	5
Low saturated fat	1	2	3	4	5
Low sugar	1	2	3	4	5
Low cholesterol	1	2	3	4	5
Low salt	1	2	3	4	5
Vegetarian	1	2	3	4	5
No preservatives	1	2	3	4	5
No additives	1	2	3	4	5

19. (continued)

	Very Unimportant				Very Important
No artificial colorings	1	2	3	4	5
No artificial flavorings	1	2	3	4	5
Low calorie	1	2	3	4	5
Increased Fiber	1	2	3	4	5
No caffeine	1	2	3	4	5
Premium ingredients (pure chocolate, real whipped cream)	1	2	3	4	5

The next set of questions aids us in understanding your concepts of nutrition.

20. As you understand it, what are the characteristics of a "heart-healthy" diet? Check all that apply.

_____ low sugar
_____ high fiber
_____ low cholesterol
_____ high carbohydrate
_____ high in vitamins
_____ bland foods
_____ low salt
_____ more broiled foods
_____ increased use of whole milk
_____ increased use of fish and poultry
_____ increased use of red meats
_____ low fat
_____ low calorie
_____ fresh foods
_____ high in minerals
_____ decreased use of red meats
_____ increased use of lowfat milk
_____ spicy foods
_____ decreased use of fish and poultry
_____ increased use of fried foods

21. Comparison of butter and margarine. Check the answer you feel is correct.

a. Which product provides more calories?
_____ Butter
_____ Margarine
_____ Both provide the same amount

b. Which contains more cholesterol?
_____ Butter
_____ Margarine
_____ Both provide the same amount

c. Which provides more polyunsaturated fat?
_____ Butter
_____ Margarine
_____ Both provide the same amount

22. Check all of the following cheeses you feel are lowfat cheeses.

_____ Cheddar
_____ Gouda
_____ Lowfat cottage cheese
_____ Mozzarella, part skim
_____ American
_____ Swiss
_____ Weight Watcher's Cheese
_____ Ricotta

23. Check all of the following products you feel are high in polyunsaturated fats.

_____ Butter
_____ Safflower oil
_____ Margarine made from liquid vegetable oil
_____ Coconut oil
_____ Sunflower oil
_____ Soybean oil
_____ Canola oil
_____ Lard
_____ Palm oil
_____ Corn oil
_____ Solid vegetable shortening

24. Check the following methods of preparing meat, fish, or poultry, that could be acceptable for a "heart-healthy" diet.

_____ Broiling
_____ Sauteing
_____ Baking
_____ Roasting
_____ Poaching
_____ Deep-fat frying
_____ Steaming

25. Which one of the following ingredients should be listed as the first ingredient for a margarine that is acceptable for a "heart-healthy" diet?
_____ Partially hydrogenated soybean oil
_____ Liquid corn oil
_____ Liquid coconut oil
_____ Partially hydrogenated palm oil

26. Which of the following dairy products would be acceptable in terms of cholesterol and saturated fat, for a "heart-healthy" diet?
_____ Whole milk
_____ 2% milk
_____ 1% milk
_____ Coffee creamer made from coconut milk
_____ Lowfat yogurt
_____ Coffee creamer made from vegetable oil
_____ Cream
_____ Skim Milk
_____ Sour Cream
_____ Buttermilk

27. Check all of the following foods that you feel would be acceptable on a low cholesterol diet.
_____ Fried chicken
_____ Baked chicken
_____ Filet mignon
_____ Extra lean ground beef, 20% fat
_____ Fried shrimp
_____ Sauteed shrimp
_____ Peanut butter
_____ Lean ground beef, 30% fat

28. Which of the following vegetable items do you feel are acceptable for a "heart-healthy" diet?
_____ Steamed broccoli
_____ Broccoli with hollandaise sauce
_____ Creamed carrots made with cream
_____ French fried potatoes
_____ Herb-seasoned green beans
_____ Scalloped potatoes
_____ Caesar Salad

29. How much nutritional knowledge have you acquired from the following sources?

	Much Information	Some Information	Little Information	No Information
Doctor	_____	_____	_____	_____
Nurse	_____	_____	_____	_____
Dietitian	_____	_____	_____	_____
Magazines	_____	_____	_____	_____
Books	_____	_____	_____	_____
Newspapers	_____	_____	_____	_____
Television	_____	_____	_____	_____
Family and friends	_____	_____	_____	_____
Other (please specify)	_____	_____	_____	_____

The next four questions relate to your values and interests. This information is helpful in designing restaurant products and services to meet your individual needs.

30. Below are twenty personal values. Indicate each value's relative importance to you by circling a number from 1-6.

	Very Unimportant					Very Important
Having leisure time to do what I want	1	2	3	4	5	6
Having a sense of dignity in what I do	1	2	3	4	5	6
Feeling that I have achieved something	1	2	3	4	5	6
Exercising independence in making decisions	1	2	3	4	5	6
Having enough money for my needs and wants	1	2	3	4	5	6
Feeling I'm an individual, distinct from others	1	2	3	4	5	6
Satisfied with my primary job	1	2	3	4	5	6
Having control over what happens to me	1	2	3	4	5	6
Being secure, free from danger, protected	1	2	3	4	5	6
Ability to accomplish things I want done	1	2	3	4	5	6
Creating new things for me and others	1	2	3	4	5	6
Succeeding in the things that I undertake	1	2	3	4	5	6

30. (continued)

	Very Unimportant					Very Important
Being admired by other people	1	2	3	4	5	6
Living in a changing world	1	2	3	4	5	6
Experiencing competition in life	1	2	3	4	5	6
Being able to concede or compromise	1	2	3	4	5	6
Living in a world where people are equal	1	2	3	4	5	6
Having one's own property, personal ownership	1	2	3	4	5	6
Having a religion, a faith in God	1	2	3	4	5	6
Taking chances or risks at times	1	2	3	4	5	6

31. In the last month, how many times have you participated in any of these activities? Check level that applies for each activity.

	Not at all	1-5x	6-10x	10 or more x
Going to movies				
Church work				
Club or association work				
Photography				
Resting, loafing, relaxing				
Reading				
Aerobic exercise like walking, jogging, swimming				

32. In the last three months, how many times have you participated in any of these activities? Check level that applies for each activity.

	Not at all	1-5x	6-10x	10 or more x
Spectator sports				
Dancing				
Walking, hiking				
Attending symphonies, operas, ballets				
Building models				
Playing team sports				

33. In the last year, how many times have you participated in any of these activities? Check level that applies for each activity.

	Not at all	1-5x	6-10x	10 or more x
Swimming at the lake, river or beach				
Water Skiing				
Power Boating				
Snow Skiing				
Fishing				
Camping				
Picnics				
Backpacking				
Number of vacations by weekends				

34. How old are you?

_____ 18-24
_____ 25-34
_____ 35-44
_____ 45-54
_____ 55-64
_____ 65 or older

35. Please check the category which best represents your total family yearly income.

_____ Less than $5,000
_____ $5,000-$8,999
_____ $9,000-$14,999
_____ $15,000-$19,999
_____ $20,000-$24,999
_____ $25,000-$29,999
_____ $30,000-$39,999
_____ $40,000-$49,999
_____ $50,000 or more

36. What is your occupation? _____

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Center for Hospitality Research and Service
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412 Femoyer Hall
Blacksburg, VA 24060

For Data Tabulation Only

37. If married, does your spouse work outside the home?
_____ yes
_____ no

38. Are you
_____ female
_____ male

39. Please check the highest level of education you have completed.
_____ Grade school _____ 4 years of college
_____ High school _____ Graduate
_____ Less than 4 years of college

40. How many children do you have living with you that are:

	Number of Children
No children	_____
Under 6 yrs. of age	_____
6-12 years of age	_____
13-17 years of age	_____

41. Which of the following best describes the area that you live in?

Urban	1
Suburban	2
Rural	3

Thank You! Refold, attach seal and mail.

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