

AN EMPIRICAL INVESTIGATION OF THE PATRONAGE BEHAVIOR
OF NUTRITION ORIENTED CONSUMERS

by

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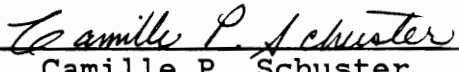
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ABSTRACT

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Marketing

(Abstract)

Patronage behavior was investigated in this study with regard to the nutrition orientation of consumers. The objective of this research was to determine if consumers' patronage behavior of grocery stores, health food stores or restaurants would be significantly related to attitudes and concerns toward nutrition and toward attitudes of their overall present and future state of health. This study relied on theories of retail patronage behavior, and empirical evidence from areas of consumer behavior, nutrition and

health to provide the framework for the design of this research.

This study employed the use of a questionnaire as the research method. Consumers were surveyed and asked to indicate their patronage and food purchase behaviors, their attitudes and concerns toward nutrition, and their attitudes toward their preventive health.

Results and conclusions from this research support the linkage between the nutritional motivations of consumers impacting upon their decisions to patronize specific retail food establishments. That is, consumers' predispositions concerning nutrition influence where and what types of food products are purchased.

ACKNOWLEDGEMENTS

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Chapter I

INTRODUCTION

Chapter Overview

This chapter begins with a general discussion of the problem motivating this study. The area of consumers' nutrition oriented patronage behavior is introduced as the focus of this research.

Basic definitions of key terms important to this study are then identified. The chapter continues with a discussion of the areas of investigation and potential uses of this research. Chapter I concludes with an outline presenting the organization of this thesis.

The Problem Motivating the Study

The concern for nutrition is having an increased impact as a determinant of food choice among consumers of the 1980's. Nutritious eating appears to be associated with consumers' motivation to improve their overall health and well being (Fallows 1986). Consumers are pursuing a more nutritionally oriented lifestyle today than in previous years as evidenced by the increasing number of nutritious food choices available in the market (Bunch 1984). Fallows (1986)

states that the increased emphasis being placed on the nutritional content of food by consumers has led food marketers to create cholesterol free, low salt, low fat, less sugar, vitamin enriched and high fiber food choice alternatives for virtually every food product category. For example, the market offers cholesterol free margarines and oils, low salt crackers, reduced sugar cereals, and fiber enriched breads as products to satisfy the nutrition oriented consumer.

Increased concern for nutrition can also be found through the greater emphasis being placed on fresh fruits and vegetables by consumers. Nutrition Week (1987) reports that as a result of this demand, supermarkets and grocery stores have also placed an emphasis on providing these fresh foods to compete for consumers' food dollars; thus, supermarkets heavily advertise the freshness of their produce. This increased concern for nutrition has created additional outlets through which marketers can meet these needs.

The nutritional concerns of consumers may also contribute to the rise of health food stores. Health food stores emerged in the late 1960's and early 1970's as a result of societal and value changes among a portion of the population which moved toward a more natural and less traditional way of life. Rowe (1987) indicates that health food stores of the 1980's appear to be a part of mainstream America as evidenced in the growing population of consumers who desire specific food products which may not be offered through a

grocery store. Thus, more stores offering healthier foods have emerged in response to these specific food choices desired by consumers. Health food stores provide consumers with an additional outlet for food patronage.

Consumers' nutritionally oriented lifestyle of today can also be linked to the restaurant industry. Regardless of the specific orientation of the restaurant (i.e., fast food, family-atmosphere, expensive, or moderately priced), a major portion of restaurants have begun offering patrons healthier meal choices (Regan 1987). Restaurant owners have responded to nutrition-oriented consumers by providing them with healthy food choices away from the home. Consumers' concern for nutrition can be responsible for the increased number of salad bars found throughout many eating establishments (Tougas 1987). For example, fast food restaurants now offer salads in addition to their other menu items. Most other restaurants either have salad bars or offer salads with meals.

Other restaurants promote menu items that have been prepared using certain nutritious ingredients such as low fat, cholesterol free oils or high fiber, whole grain breads. As indicated by Rowe (1987), many restaurants are also participating in the American Heart Association Meal Plan in which menu items are labeled as acceptable for heart patients who must monitor their intake of salt, fat or calories. Such changes in restaurant offerings can be directly attributed

to the nutritionally oriented trend in today's consumer lifestyle (Tougas 1987).

With the phenomenon of consumers' increased concern for nutrition becoming an apparent trend of the 1980's and possibly into the 1990's, the motivations of these consumers needs to be better understood in order to provide for their needs and desires. Nutrition oriented consumers probably possess certain attitudes, beliefs and concerns that influence their purchase decisions and patronage outlet choices. The need to try to understand the role between consumers' concerns for nutrition and their patronage behavior is important because these nutrition oriented consumers represent a growing segment of the population. Therefore, the motivations leading to their purchase decisions is an area that merits investigation (Seligmann and Gosnell 1984). Because of the growing concerns of these consumers, their nutrition oriented motivations and patronage behaviors creates a relatively untapped area of consumer behavior and so should be researched more systematically.

Basic Definitions

Several terms are defined here to establish a basic framework for the research setting of this study. One of the basic concepts in this study is nutrition. Eschlemann (1984) defines nutrition as "the science of food and its relationship to health and disease, and the processes by which the

body ingests, absorbs, transports, uses, and excretes food substances." An alternative definition of nutrition is provided by Whitney and Hamilton (1984) who state that "nutrition is the study of nutrients and of their ingestion, digestion, absorption, transport, metabolism, interaction, storage, and excretion. Nutrition includes the study of the environment and of human behavior as it relates to these processes." Nutrition, as used in this study, is defined as the elements or nutrients in foods that combine to provide the "fuel" to give energy and help a person maintain a healthy body. This definition was chosen over the more scientific definition because it provides a more general description for the topic of nutrition-oriented behaviors to be referenced in future discussions including the survey instrument, conclusions of this study, and implications for theory and management.

This study also addresses the issue of consumer purchase behavior motivated by nutritional concerns. For the purpose of this study, nutrition-oriented patronage behavior is defined as consumer food purchase decisions and patronage outlet choices based on the best nutritious food alternatives available. These nutrition oriented purchases may be made through grocery stores, health food stores or restaurants.

An additional concept included in this study is that of health. Health is defined as optimal body functioning with freedom from disease or pain (Eschleman 1984). The concept

of health is investigated in this study in terms of preventive health, for example, preventing or reducing the risks of contracting certain diseases such as cancer or heart disease.

Another concept integral to this study is that of attitude. Robertson, Zielinski and Ward (1984) define an attitude as a non-neutral concept having a strong affective component. Consumers' attitudes possess an enduring, emotionally charged characteristic about them. Thus, attitudes are the specific orientations that exist within the consumer's mind. Conceptually, an attitude is associated with the presence of either a positive or negative view of an object or idea. Therefore, consumers' positive attitudes toward nutrition may be linked to their purchase behaviors of nutritionally oriented food products and patronage choices of retail food outlets.

Areas of Investigation

As stated earlier, the major purpose of this research is to understand how consumers' concern for nutrition influences their patronage behavior of food product purchases through grocery stores, health food stores, and restaurants.

This research attempts to determine the relationships, if any, that exist between a set of dependent variables dealing with nutrition oriented purchase behavior and various independent variables. The dependent variable of nutrition-

oriented purchase behavior is examined with respect to the three dimensions of: 1) grocery store patronage behavior, 2) health food store patronage behavior, and 3) restaurant patronage behavior. These three dimensions of purchase behavior provide the outlets for nutrition oriented consumers to use to satisfy their decisions in the market place.

Consumers' attitudes are shown to be linked to their behaviors (Berkman and Gilson 1986). Therefore, this study seeks to determine to what extent consumers' attitudes toward nutrition, concerns toward certain elements in food products, and attitudes toward preventive health may be predictors of their patronage behavior.

For the purpose of this study, the independent variables tested to explain consumers' nutrition oriented purchase behavior are: 1) consumers' attitudes toward nutrition, 2) consumers' concerns toward certain elements in food, 3) consumers' attitudes toward preventive health, and 4) demographic characteristics. These constructs are proposed to explain the nutrition oriented patronage behavior of consumers.

Potential Uses of This Research

This research seeks to provide an understanding of the extent to which attitudes and concerns toward nutrition, and toward preventive health influence consumers' patronage behavior of grocery stores, health food stores, and restau-

rants. In addition, a determination of the demographic characteristics associated with the nutrition-oriented patronage behavior of consumers is also of interest to better identify these consumers and perhaps form typologies within the nutrition-oriented market segment.

In addition to conceptual contributions, results of this study may provide marketing practitioners with valuable information when planning strategies for the marketing of nutritional food products. For example, the manager of a grocery store may wish to segment on the basis of the variety or large selection of health and natural foods offered by the store. In addition, the store manager must also determine if a profitable volume can be achieved through the nutrition-conscious consumer in the specific outlet area.

This research project may also produce significant results to provide marketing opportunities for restaurant managers who may wish to reach this nutrition oriented market segment by offering low calorie, low salt, low fat or high fiber foods to customers. The results of this research may provide food product or restaurant marketers with information revealing the need for the creation of new market segment strategies to meet the needs of the nutrition oriented consumer.

Organization of this Thesis

Chapter II contains a review of the research streams in marketing relating to the nutrition oriented purchase behavior of consumers. This chapter includes a discussion of: 1) patronage theory, 2) attitudes toward nutrition, 3) consumers' nutrition motivated purchase behavior pertaining to grocery stores, health food stores, and restaurants, 4) consumers' attitudes toward vitamin and supplement use, 5) consumers' attitudes toward preventive health and 6) demographics. Previous studies and their findings dealing with similar content of this thesis are reported and integrated into the focus of this study. In addition, this chapter presents the operational hypotheses tested in this research project. These hypotheses are generated from a review of the literature in the areas of patronage theory, nutrition, the restaurant industry and the grocery and health food store industries.

Chapter III focuses on the methodological techniques used in this research study. The survey instrument, sampling design, and method of data collection are described. The multivariate statistical technique of canonical correlation used for data analysis is also discussed.

Chapter IV presents the results of this research in both verbal description and table form. Support or non-support for the hypotheses presented in Chapter II is included, as well as other significant findings.

Chapter V includes a general discussion of the summary of the results obtained from this research. Implications of the results are included in terms of contributions made to conceptual development. The chapter concludes with limitations of this research study, implications for the marketing practitioner and finally, suggestions for future research.

Chapter Summary

This chapter introduced the research topic of proposing the relationship between the patronage behaviors of nutrition-oriented consumers and their attitudes and concerns toward nutrition and their health.

Basic definitions of key terms to this study were identified followed by a discussion of the areas of investigation and potential uses of this research. The chapter then concluded with an explanation of the organization of this thesis.

Chapter II

REVIEW OF THE LITERATURE

Chapter Overview

A concern for nutrition and health plays an important role in the food purchase and patronage behaviors of some consumers. The purpose of this chapter is to examine these patronage behaviors and attitudes through the development of the conceptual framework for the research undertaken in this thesis.

The chapter begins with a discussion of patronage theory as it relates to this study. A conceptual model of the patronage behavior of the health and nutrition conscious consumer is then presented. The components of the model are defined and the linkages between the variables are then explained.

A review of the literature in the areas of patronage behavior, nutrition, the restaurant industry, and retail food outlets is presented. The literature review and conceptual model then combine to formulate the hypotheses that are tested in this research study.

Patronage Theory

Consumers are faced with increasingly more retail outlets through which they may fulfill their product desires. Thus, these retailers are faced with the challenge of attracting shoppers through the promotion of the outlet's offerings. However, not every patronage offering will have the same effect on every shopper (Darden and Lusch 1983). Different shopper segments will possess different motivations for shopping, thereby choosing to patronize a store based on reasons unique to the group. Thus, successful retail store positioning is aided by a knowledge of patronage behavior (Darden and Lusch 1983).

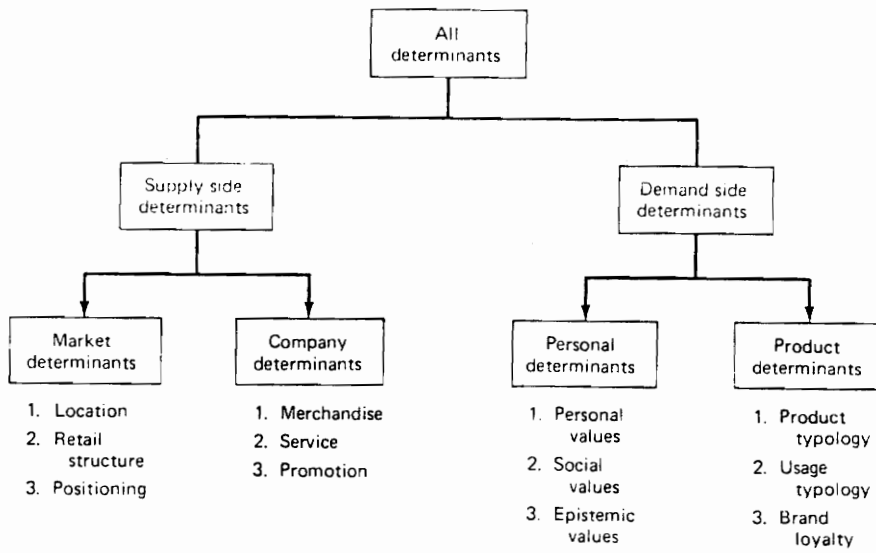
Patronage theory suggests that consumers utilize shopping strategies when completing their consumption needs. Guiltinan and Monroe (1980) define shopping strategies as the sets of activities that reflect the motives and decision processes concerning shopping behavior. This study identified six grocery shopping strategies used by consumers, as well as store attribute characteristics and socio-economic and demographic characteristics of these shoppers.

These resulting shopping strategies were then used to describe each of the six groups of shoppers by forming typologies of their patronage behaviors and group characteristics previously discussed. Results of this study indicate the importance of shopping strategies associated with multi-dimensional motivations such as beliefs, interests, demo-

graphics and behaviors. Thus, this study suggests the importance of an understanding of consumers' retail patronage behavior by gathering more knowledge about shoppers, their beliefs and attitudes, their media habits and their socio-economic characteristics as is proposed by this research.

Patronage theory also suggests that consumers possess a set of sought attributes that motivate their retail patronage choices. Arnold, Oum and Tigert (1983) addressed this aspect of patronage theory and determined that sought attributes were important in determining grocery store choice. Locational convenience and low prices were identified as the most important attributes, or determinants of grocery store patronage choice. The results of this study support the link between food store patronage choice and a set of sought attributes important to shoppers. This proposition is similarly investigated within the context of this study.

Determinants of shopping preference theory have been summarized by Sheth (1983) and are shown in Figure 1. This theory can be divided into supply side determinants and demand side determinants. Supply side determinants are comprised of market determinants and company determinants. Market determinants are those factors which determine the competitive structure of a shopping area. These include location of the retail establishment, retail structure such as a shopping mall or a discount store, and the positioning and image of the retail outlet. Company determinants are defined



Source: Sheth (1983), p. 20

Figure 1: Determinants of Shopping Preference Theory

as those factors that influence and limit a consumer's specific shopping options. These determinants include the merchandise, or the products sought, service (including full or self service, store hours, credit policy and atmospherics) and promotion which refers to the retail outlet's advertising, sales promotions and other specials designed to attract targeted customers.

Demand side determinants are comprised of personal determinants and product determinants. Personal determinants refer to customer-specific factors which influence a customer's general shopping motivations. These determinants include the personal values of an individual, the social values imposed by friends, family, reference groups or society which influence the shopper, and epistemic values of the shopper such as the curiosity, knowledge and other values related to the natural tendencies humans possess. Product determinants refer to the customer's specific shopping motivations for a given product class. These determinants include product typology which is the classification of products into distinct categories based on the utility provided, usage typology which refers to the social setting in which a particular product is used, and brand predisposition which refers to the degree of loyalty the customer feels toward the product.

The model of shopping preference determinants proposes that these preferences impact upon the patronage choice of

retail outlets by consumers seeking to satisfy their product desires in the market place. This model provides the foundation for this study's examination of the patronage behavior of consumers based on a set of nutrition-oriented determinants discussed in the following section.

Conceptual Model of Patronage Behavior

A conceptual model of nutrition oriented patronage within the three retail outlets of grocery stores, restaurants and health food stores is presented in Figure 2. The components of this model include not only the behavioral variables, but also explanatory variables. First, consumers' attitudes toward preventive health are discussed in this study as the positive feelings consumers possess regarding the practice of maintaining their present state of health and the prevention of future pain and disease to their body.

The component of attitudes toward nutrition is conceptually defined as the positive feelings toward nutrition and toward the practice of consuming nutritious foods. Consumers' attitudes toward nutrition may be found to be an explanatory variable of their patronage behavior as examined in this study.

Concerns toward certain nutritional elements found in food products eaten represent the feelings toward a set of elements including vitamins, fiber, cholesterol, fat, calories, etc. Consumers may be concerned with both the positive

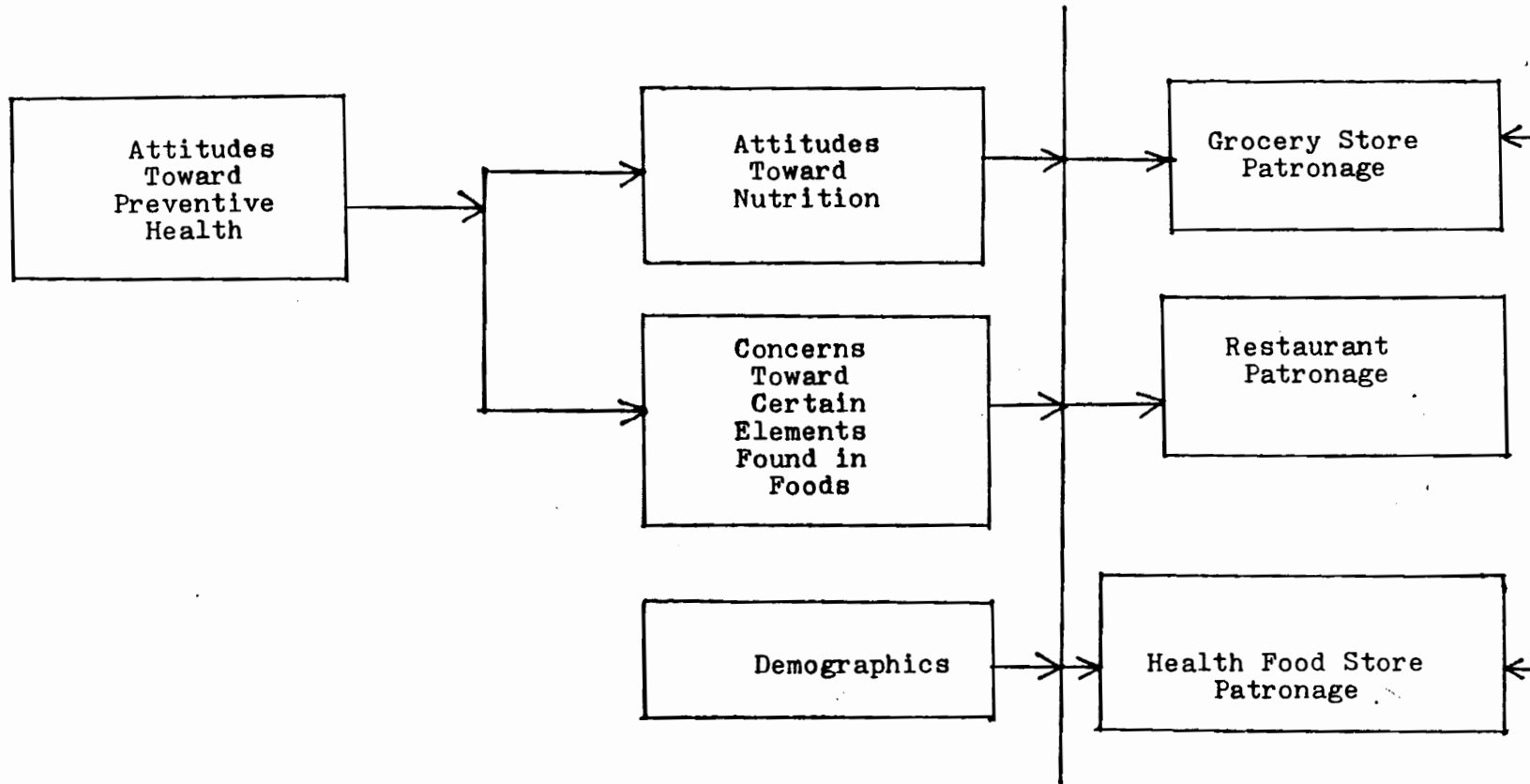


Figure 2: Conceptual Model of Health and Nutrition Oriented Patronage Behavior

nutritional elements found in food and also with the negative or harmful elements. These concerns may motivate consumers to monitor their diet, and thus influence where they purchase food products in outlets of food stores and restaurants.

This model also includes the component of demographics. Demographics can be defined as the socioeconomic characteristics of consumers including, but not limited to, age, sex, income, education, and marital status. These demographic characteristics may combine with other variables in this research to form typologies of the nutrition oriented patronage choices of consumers as investigated in this research.

This conceptual model seeks to provide the basic framework underlying the motivating factors in explaining or predicting the patronage behavior of nutrition oriented consumers. The following section explains the constructs of the model by discussing the possible linkages among the constructs.

Explanation of the Model

This model of nutrition-oriented patronage behavior is based on the patronage prediction of the three retail outlets of grocery stores, restaurants and health food stores. The linkages in this model between the attitudinal and demographic variables and the patronage variables seek to explain the patronage behavior of health and nutrition oriented consumers.

Each of the attitudinal variables may individually predict patronage as shown in the model. However, attitudes toward preventive health may be linked to attitudes toward nutrition and concerns toward certain elements found in food products. That is, a positive attitude toward preventive health may lead to positive attitudes toward nutrition and food elements, thus resulting in the patronizing of retail outlets that offer nutritious food products.

A link may also be found to exist between the patronage variables. Consumers who choose to patronize grocery stores for nutritious or healthy food products may also find the need to supplement their shopping by patronizing health food stores in order to obtain the desired products. Restaurant patronage is not linked to the other two store patronage variables because of the different orientation and reasons for patronizing restaurants compared to store patronage. Restaurants offer food products or, desired benefits, in a different manner than food stores. That is, consumers usually purchase and consume the food product in a relatively short period of time when patronizing a restaurant. Food products purchased from a store are usually consumed at a later time. Thus, these differences in the two outlets explain why a link between these two variables is not conceptualized.

This model seeks to explain the health and nutrition orientation of consumers' patronage in retail food estab-

ishments. The variables identified in this model are tested and measured in this research study to better aid the marketers of nutrition oriented products and services.

REVIEW OF EMPIRICAL LITERATURE

A concern for nutrition plays an important role in the retail patronage behavior of some consumers. Do consumers' attitudes toward nutrition, concerns toward elements in food products or their overall concern for present and future health lead to their purchasing nutritious food products through the three retail outlets of restaurants, grocery stores, and health food stores? The following is a review of studies that pertain to these nutrition-oriented attitudes and behaviors of consumers. The review of the literature is presented by grouping these studies according to:

1. Restaurant patronage behavior
2. Grocery store patronage behavior
3. Health food store patronage behavior
4. Attitudes toward nutrition
5. Attitudes toward vitamin and supplements
6. Attitudes toward preventive health
7. Demographic characteristics of nutrition-oriented consumers

Restaurant Patronage Behavior

The restaurant industry is characterized by a competitive environment in which managers must be constantly cognizant of changing consumer desires toward food, service and even atmosphere. Realizing and meeting the nutritional concerns of the restaurant patron provides restaurant marketers with opportunities to compete in and possibly capture a profitable share of the market.

Eating out is a growing trend among American consumers (Tougas 1987). The share of the food dollar spent by consumers eating away from home has increased from 28% in 1962 to approximately 40% in 1987 and is expected to reach 45 percent by 1990 (Bunch 1984). A recent study reported that Americans are eating out an average of 3.7 times per week, and the actual number of meals purchased each week from restaurants equaled 770 million, an increase of 4.5% from 1981 (Regan 1987).

Research suggests that consumers are increasingly aware of and concerned about food, nutrition and overall health issues (Nutrition Week 1987). Nutrition awareness exists in not only at-home situations, but also extends to eating out. A 1986 Gallup survey conducted for the National Restaurant Association shows that 39 percent of consumers have improved their eating habits in restaurants to reflect their concern for nutrition. Respondents reported altering their restaurant dining habits in several ways. For example, 25 percent

reported they ate more vegetables, used less or no salt and less or no sugar. Approximately 20 percent of the respondents said they ordered more fish, 18 percent ordered more salads, and 17 percent ordered less meat. This study also revealed two groups, health conscious and weight conscious representing 47 percent of adult consumers, who were most likely to order nutritious or lighter foods (lower calorie, reduced fat or sugar) in restaurants.

Restaurant patrons are reducing their consumption of food items that are high in caffeine, sugar, fat, and cholesterol, while also ordering lower sodium meals, smaller size portions, and lower calorie entrees (Regan 1987). More and more restaurants are responding to consumers' growing interest in healthy and nutritious eating by altering their menu items (Kochak 1985; Rowe 1987; Tougas 1987). Regan (1987) indicates that menu items experiencing the largest increase in popularity between 1982 and 1984 were decaffeinated coffee, with 57 percent more orders, and fruit, with 48 percent more orders. In addition, the growth rate of diet sodas by 39 percent, salads as main dishes by 31 percent and fruit and vegetable juices by 15 percent combine to reveal consumers attempt at eating more nutritiously in restaurants (Regan 1987).

Regan (1987) reports that the growing nutrition oriented consumer pressures can be felt in the fast food industry. Several of the large chains now provide guidelines to healthy

eating in their restaurants. For example, McDonald's provides consumers on restricted diets with ingredient data and reports the booklet development as a response to consumer desires and boasts, "We're a leader in the industry because we follow our customers."

Reviewing the overwhelming evidence of the nutrition trend among consumers permeating through to the restaurant industry, the support for examining this phenomenon of today's society becomes apparent. Therefore, this research study examines the relationship between consumers' attitudes toward nutrition and their restaurant patronage.

Grocery Store Patronage Behavior

Consumers' concern for nutrition also affects grocery store patronage. For example, sales of wholewheat bread have quadrupled during the past decade, and during 1985, sales of low fat milk increased from 4 percent of the market to over 16 percent (Fallows 1986). Thus, consumers appear to be changing their food purchase patterns by making more nutrition-conscious choices.

Recognizing the importance of nutrition as an integral part of today's consumers, the grocery store industry has become more than just a source of products. For example, Nutrition Week (1987) and Supermarket Business (1986) report that consumers' desire for nutritious and fresh produce in-

cludes clean and well-laid out produce departments, as well as value priced and superior quality produce.

Nutrition Week (1987) revealed that while consumer spending for groceries decreased to \$72 per week (a decrease of \$2 from 1986), the 1987 consumer desired more quality and variety in fresh produce and meat. Research also indicates a large percentage of consumers demand healthy food alternatives from grocery stores by requesting foods containing more vitamin C and fiber and less calories, salt, sugar, and cholesterol levels.

Health Food Store Patronage Behavior

Consumers' concern for nutrition can also be attributed to the development and success of retail food product outlets designed specifically to provide health and natural foods. Calantone (1978) reported that consumers will consider shopping in only those stores in which the store image is supportive with the benefits or ideal attributes sought by the shopper. These results can be inferred to nutrition oriented consumers who feel that a health and natural food store offers the nutritional food products desired, thus leading to store patronage.

Pessemier (1980) found that stores possessing important attributes to the shopper are always assumed to be more preferred and more patronized. The results of this research can be inferred to the health food store industry. For example,

the offering of a variety of health foods (vitamin or nutrient enriched foods or foods in their natural state with no preservatives or additives) may be a sought attribute by the nutrition oriented consumer, thus leading to health food store patronage.

The literature discusses the creation of these specific health food stores as a response to the needs of the nutritious conscious consumers. The rise of these health food stores provides support for the influence of the nutrition trend on the retail industry. These health and natural food stores are providing food products to meet the desires of the health conscious consumer.

Attitudes Toward Nutrition

Research results indicate that consumer attitudes and habits are reflecting improved health behaviors. Miller (1980) reports that one out of four respondents claimed to be eating more nutritiously than in previous years. A 1985 nationwide survey revealed that 59 percent of consumers were very concerned and 32 percent were somewhat concerned about nutrition in the foods they eat (Achabal, Bell, McIntyre and Tucker 1987).

Nutrition Week (1987) reports that consumers' concern for nutrition is evidenced by an increased concern about calories from 9 percent in 1985 to 14 percent in 1987, while a desire to eat more nutritiously and healthy nearly doubled.

Consumers also indicated a greater concern for vitamins and minerals, fat, cholesterol, salt, fiber and maintaining a balanced diet when consuming foods.

A study by Melby, Femea and Sciacca (1986) revealed that consumers' attitudes and beliefs toward nutrition are contributing factors to their dietary purchase and consumption practices. However, this study also pointed out that these factors may not be the sole determinants of the resulting purchase behavior. Taste preferences, financial situations, and the ease of access to types of food and products also play important roles in consumers' food purchase behavior in choosing a food retail outlet.

The growing concern for nutrition among consumers is evidenced by the increasing demand of nutrition information. Consumers' favorable attitudes toward nutrition have resulted in food manufacturers providing nutrition information on labels. Jacoby, Chestnut and Silberman (1977) indicate that the majority of consumers want nutrition information of products to aid in making purchase decisions. Attitudes toward nutrition have enabled food marketers to promote and provide the nutritional quality of their products to appeal to the nutrition oriented consumer.

Attitudes Toward Vitamins and Supplements

Concerns among consumers regarding dietary adequacy, in addition to the recent wellness movement, have combined to

play a major role in the rapid growth of vitamin and supplement consumption (Thomsen 1987). The regular use of one or more vitamin or mineral supplements as part of consumer diets is a popular health behavior among Americans. Approximately 40 percent of the adult population consumes vitamin or mineral supplements (Raab 1987).

The vitamin and supplement products comprise a \$2 billion industry which serves a long-standing and diverse consumer demand (Levy and Schucker 1987). Vitamin and mineral supplement products range from multi-vitamins composed of several nutrients to single nutrient vitamins (Levy and Schucker 1987). The consumption of vitamins and supplements by consumers represents a conscious attempt to control nutritional status (Levy and Schucker 1987). This result indicates an awareness and concern of nutrition among the users.

Relatively few studies have attempted to describe the relationship between attitudes toward vitamins/supplements and the retail patronage choices and demographic characteristics of users. However, a study by Schultz, Read, Bendel, Bhalla, Harrill, Monagle, Sheehan and Standal (1982) found that heavy vitamin users tended to be older adults (aged 41 to 64) with a higher level of education and predominantly female. Levy and Schucker (1987) also found that light users of vitamins typically were 16 to 25 years of age, while heavy users tended to be aged over 40 years. Results of this study

also indicate that heavy nutrient takers were characterized by frequent visits to health food stores and greater involvement with nutrition.

The increased consumption of vitamins and supplements may be linked to the motivation of consumers to pursue a nutritionally oriented lifestyle. This nutrition oriented lifestyle may or may not include the patronage of nutrition oriented food products through retail outlets, as investigated by this research study.

Attitudes Toward Preventive Health

Current literature suggests that healthy eating is associated with consumers' desire to improve their overall present and future health. In a recent survey, approximately 75 percent of Americans reported that they had made changes in their diet as a result of health concerns (Seligmann and Gosnell 1984). Consumers' eating behavior has changed over the past decade indicating a support for this nutritional trend in today's society. For example, the results of a study on nutrition revealed that 52 percent of adult Americans were trying to eliminate fat and sugar from their diet, 32 percent were trying to reduce their salt intake, 29 percent were trying to consume less artificial preservatives and additives and 27 percent less artificial coloring (Hepburn 1986).

In addition to the basic nutritional concerns of consumers for eating or avoiding a variety of foods lies an entire range of quality of life and future health goals that consumers cite to explain their nutrition oriented food choices. Avoidance of heart disease and cancer are reported as reasons for a concern for nutrition among consumers (Rowe 1987). These consumers are motivated to purchase nutritional food products as a result of the medical evidence stating that a nutritious diet can help in reducing the risk of getting certain diseases or health problems. For example, fear of heart disease, the nation's number one killer, has resulted in the most powerful motivation for a change in American eating habits (Seligmann 1987). Physicians advise that the risk of heart disease can be lowered by reducing the intake of cholesterol and saturated fats. Preliminary evidence also suggests that an increase in fiber intake may also help prevent heart disease and also may reduce the risk of certain types of cancer (Maleskey 1987; Prevention 1987).

Regardless of the motivation, the new awareness of the effects of food to either improve or jeopardize present and future health has resulted in a dynamic evolution in eating habits. Consumers' concern for their health may be linked to their nutrition oriented patronage behavior as this research proposes to investigate.

Demographic Characteristics

Regan (1987) identifies working women, older Americans over age 65, college graduates and families with small children as those consumers particularly concerned about nutrition. With these groups of consumers representing some of the fastest growing market segments, the need to provide goods and services for these nutrition oriented consumers provides marketers with potential profitable opportunities.

A study conducted by Lagace (1983) reported that women and respondents over 40 years of age sought the majority of their nutritional information from television, whereas men and respondents under 40 years of age obtained their information primarily from newspapers. Results indicated that women and respondents under 40 were twice as likely as men and consumers over 40 to consult magazines and books for nutritional information. Approximately 10 percent of the respondents identified the radio as a source of nutritional information.

Vandenberg (1981) found consumers who expressed a concern for nutrition to be in good health, very well nourished, white, between the ages of 31 to 59 years, college educated, and have above average incomes. Results of this study also indicate that education and income are the two best predictors of nutrition-oriented concerns.

The demographic characteristics of these nutrition concerned consumers may provide a link to explaining their

patronage behavior regarding nutritional food products. Understanding the patronage motivations of these consumers will provide marketers with the ability to explain how nutritional attitudes may predict their nutrition oriented patronage behavior through the retail outlets of grocery stores, health food stores and restaurants.

OPERATIONAL HYPOTHESES

A review of the conceptual model of health and nutrition oriented patronage behavior and the literature concerning the nutrition oriented attitudes and purchase behaviors of consumers has led to the formulation of hypotheses to be tested in this research study. These hypotheses are presented in this section and include:

1. There will be a positive relationship between consumers' attitudes toward nutrition and their patronage behavior regarding the food items purchased in restaurants.
2. Consumers' concerns toward nutrition regarding certain elements found in food products will be positively related to the patronage of restaurants based on the offering of nutritious food selections.
3. There will be a positive relationship between consumers' attitudes toward preventive health and their patronage behavior of restaurants.
4. A set of demographic characteristics will be significantly related to the patronage behavior of restaurants which offer nutritious food products on the menu.
5. There will be a positive relationship between consumers' attitudes toward nutrition and their patronage behavior of grocery stores.
6. Consumers' concerns toward certain elements found in food products eaten will be positively related to grocery store patronage.

7. There will be a positive relationship between consumers' attitudes toward preventive health and their grocery store patronage behavior.
8. A set of demographic characteristics will be significantly related to the patronage behavior of grocery stores based on the store's offering of nutritious food products.
9. There will be a positive relationship between consumers' attitudes toward nutrition and their patronage behavior regarding health food stores.
10. Consumers' concerns toward certain elements found in food products will be positively related to their patronage behavior of health food stores.
11. Consumers' attitudes toward preventive health will be positively related to their health food store patronage.
12. A set of demographic characteristics will be significantly related to the patronage of health food stores based on the store's offering of nutritious foods.

Chapter Summary

This chapter has presented the conceptual and empirical framework for this study. Patronage theory was discussed as it provides the behavioral foundation of this research. Next, a conceptual model of patronage behavior was presented explaining the variables used in this study.

The chapter then proceeded with a review of the empirical literature pertaining to the essential variables in this study. The chapter then concluded with the study's operational hypotheses generated from the theoretical and empirical patronage behavior discussion.

Chapter III

METHODOLOGY

Chapter Overview

This chapter addresses the methodological basis and strategy for this consumer research study. The chapter begins with a discussion of the variables used for analysis as extracted from the conceptual model discussed in Chapter II. Data measurement is then discussed in terms of the purpose and components of the survey instrument. Next, the sample design is described including the justification of the sample method chosen. The sample size of this study as well as the sampling procedures are explained, including any constraints or limitations.

The chapter then concludes with a description of the data analysis techniques used in this study. The multivariate statistical technique of canonical correlation is introduced as the method of analysis and interpretation of the gathered data set.

Design and Discussion of Variables

The variables used for analysis in this study were presented in Chapter II as conceptualized constructs. For the purpose of this research, the dependent variable of patronage behavior was tested with regard to three retail outlets available to consumers of grocery stores, health food stores and restaurants.

Consumers' purchase behavior of food products and their patronage behavior of food retail outlets were measured by the survey instrument (See Appendix A). Respondents were asked to report their food purchase behavior through open-ended questions asking the amount of money spent on food products per week, the amount of money spent per week on food considered to be health food, the amount of money spent per week on food based on its high fiber content, and the amount of times the respondent specifically shopped for nutritious food products.

Respondents were also asked to indicate the percentage of food selections made based on the food's nutritional content ranging from 0% indicating none to 100% indicating all purchases. The percentage of food products bought that clearly state the nutritional value was also asked using the above scale ranging from 0% (none) to 100% (all).

The questionnaire also included measures dealing with the patronage behavior of consumers regarding the three retail outlet dependent variables. As Appendix A shows,

patronage behavior was measured by asking respondents to indicate where the majority of shopping for food products is done (respondents were asked to indicate one out of four outlets), how often an additional store is used to purchase nutritious foods (response was a percentage ranging from 0% indicating never to 100% indicating always) and, if an additional store was used, the type of store patronized (respondents were asked to indicate one out of the four outlets of grocery stores, health food stores, convenience stores or farmer's markets). A specific question regarding health food store patronage was included and respondents were asked what percentage of food store visits are to a health food store by a scale ranging from 0% (none) to to 100% (all).

Consumers' restaurant patronage behavior was also measured by this study. Respondents were asked to indicate how many meals are eaten at a restaurant of any type in a typical week, how many times the respondent eats at a restaurant that offers health oriented foods on the menu, and what percentage of the food items selected at a restaurant are chosen based on their nutritional content (response percentage ranged from 0% indicating none to 100% indicating all).

Consumers' food consumption behaviors were measured for the purpose of determining the overall nutrition oriented motivations of the sample. Respondents were asked to identify how many items eaten were chosen based on the positive nutritional contribution to the diet, and also to indicate

the percentage of foods eaten that are commonly called "healthy food" by a scale ranging from 0% indicating none to 100% indicating all.

Measures of consumers' food consumption behaviors included asking respondents to indicate the extent to which they have reduced the consumption of a group of products (Appendix A, question 16). Respondents were asked to indicate their consumption reduction over the past one year of these products by selecting a percentage ranging from 0% (no consumption change) to 100% (complete elimination of the product from the diet).

Food consumption behavior was also measured by asking respondents to indicate the extent to which they have increased their consumption of a group of products (Appendix A, question 17). Respondents were asked to indicate their increase in consumption over the past year of these products by selecting a percentage ranging from 0% (no change in consumption) to 100% (consuming at least twice as much more of the product).

The independent variables of this study include consumers': 1) attitudes toward nutrition, 2) attitudes toward preventive health, 3) concerns toward certain elements found in food products consumed and 4) demographics.

Attitudes toward nutrition were measured in this study by asking participants to respond to a set of statements regarding nutrition. These attitudes were measured using a

5-point agree/disagree rating scale in which a 1 indicated strongly disagree up to a 5 which indicated strongly agree. These attitudinal measures included statements concerning the nutritional content of foods, the availability of nutritional information and the importance of nutrition when eating away from the home.

Concerns toward certain elements found in food products (sugar, fat, cholesterol, etc.) were measured by asking respondents to indicate their degree of concern. These concerns of food elements were measured using a 5-point rating scale in which a 1 indicated very unconcerned up to a 5 which indicated very concerned.

Attitudes toward preventive health were measured in this study by asking participants to respond to a set of statements regarding overall health. These attitudes were measured using a 5-point agree/disagree rating scale where a 1 indicated strongly disagree up to a 5 which indicated strongly agree. This set of attitudes was also measured using a 5-point rating scale asking respondents to indicate their health concerns ranging from a 1 indicating very unconcerned up to a 5 indicating very concerned.

Finally, demographic characteristics of the sample were measured by ordinal questions asking the gender, marital status, educational level, type of dwelling lived in, radio listenership, newspaper readership and income level of respondents. Additional characteristics of age, number of

children in the household, total persons in the household and occupation were asked using open-ended questions.

Sample Design

The population from which the sample was drawn in this study is defined as all households in Blacksburg that purchase food products either in a food store or a restaurant. For the purpose of this study, a sample was drawn from the population on the basis of a random probability sampling method. A probabilistic sampling method was chosen to help in assuring the degree of representativeness of the sample back to the population.

The cluster systematic sampling method was utilized in this study. The systematic sample involves the selection of every Kth element after a random start (Churchill, 1987, p.464). Cluster sampling involves dividing the population into mutually exclusive and exhaustive subsets. A random selection of each subset is then chosen to comprise the sample (Churchill, 1987, p. 464).

In this study the town of Blacksburg was divided into ten area neighborhood housing sections based on municipal records. Appendix B shows the map by which the neighborhood housing districts were chosen to survey. Of the total twenty housing neighborhoods within the Town of Blacksburg, ten areas were known to be student dominated and ten areas were known to consist of non-student dominated households. The

household districts which were surveyed in this study include areas 01, 03, 07, 10, 11, 12, 13, 14, 19, and 20 as shown on the map. Areas of the housing sections which were known to be student dominated were eliminated prior to the sampling procedure because of the bias associated with this atypical group of consumers who possess behaviors, attitudes and demographic factors which are not representative of the population for this study.

Each cluster of households had its own random starting point from where every third house on every second street was chosen to survey. In using this method, every element in each housing cluster has a known chance of being selected. This method of sampling was chosen to ensure the representativeness of the population. This method of gathering data concerning consumers' food purchase behaviors provides the framework for analyzing and interpreting the survey results.

Sample Size and Sample Procedure

The sample size of this study consisted of 100 households. Each of the 10 housing districts was surveyed with a total of 10 responses per district. Each household was approached and the household member who answered the door was asked to complete the questionnaire. The only restriction placed on the respondents was that of being a head of the household. This restriction placed on respondents would

eliminate teenagers unfamiliar with the household's purchase of food products or retail outlets patronized from completing the survey with inaccurate responses. Therefore, this restriction of head of the household was to ensure that the respondent would have some knowledge or familiarity with the subject matter of the questionnaire.

The sampling method used in this study was specified earlier as the cluster systematic procedure. This method involved approaching the household and asking a head of the household who answered the door to complete the questionnaire. If the response was yes, then the questionnaire was left at the household and the respondent was asked to complete the survey and then place it in the outside doorway to be picked up in the next thirty minutes. If the response was no, or if no one was home, then the next third household in sequence was approached. While completing the sampling of each particular district, the unoccupied household was approached two more times for a total of three times. If on the third try there was no response, then the sequence was continued following the last house surveyed until all ten questionnaires per district were completed.

The Survey Instrument

The questionnaire design of the survey instrument was comprised of structured-undisguised questions. Structure is the degree of standardization found throughout the question-

naire (Churchill, 1987). In a structured questionnaire, the questions and the response options are all predetermined. Disguise refers to the amount of knowledge concerning the purpose of the survey that is hidden from the respondent. This questionnaire is undisguised, that is, no attempt was made to hide the purpose of the survey from respondents.

The structured-undisguised questionnaire design used in this study presented each respondent with the same worded questions in the same order. This design was selected for its standardization to ensure that all respondents were replying to the same questions and so the responses could be compared statistically.

The questionnaire was comprised of a variety of types of questions including fixed-alternative multichotomous questions, and open-ended questions. These types of questions were used to measure the food purchase and patronage behaviors of those surveyed as well as demographic characteristics. The survey instrument also utilized 5-point agree/disagree and 5-point concerned/unconcerned scales to measure respondents' attitudes toward nutrition, preventive health and concerns toward certain elements found in food products (see Appendix A for complete survey).

The concept of attitude was measured in the survey because of the possible link between attitude and behavior, as discussed in Chapter II. For the purpose of this study, attitudes were measured to determine their influence on con-

sumers' patronage behavior of nutritious food products in food stores. The results of this survey instrument measuring attitudes and behaviors will hopefully lead to conceptual links between nutrition oriented attitudes and behaviors, which in turn provide the basis for managerial implications for marketers.

Data Analysis Techniques

Data analysis for this study involved the use of multivariate statistical techniques. Multivariate analysis techniques were selected because this study contains three continuously measured dependent variables and four continuously measured independent variables. The multivariate statistical technique of canonical correlation was administered in this research study because it best fit the objectives of the research hypotheses. Canonical correlation is a multiple correlation with K_1 independent variables and K_2 dependent variables where K_1 and K_2 represent the numbers of variables used in the study (Hinkle; Wiersma and Jurs, 1987). The number of K_1 and K_2 variables are greater than one, but are not necessarily equal.

Canonical correlation is used when the research goal is to determine if any relationships exist between a set of dependent variables and a set of independent variables, and also to determine the strength of the relationship (Hinkle, et. al. 1987). Canonical correlation is used when the re-

search goal is to predict multiple dependent variables from multiple independent variables.

The focus of canonical correlation is primarily on the computed correlation coefficient, or root, as it describes the relationship or accounts for the variance between two traits or variates, one from each set of variables (Hair, et. al. 1987). As Hinkle, et. al (1987) states, a trait or a construct is a theoretical concept which describes a behavior or an action; however, this construct must be represented numerically, as done through a canonical correlation analysis. The numerical representation of the construct is called a canonical variate.

To interpret the canonical variates, which are artificial variables, these variates must be related to the real variables. This interpretation is done through the computation of the correlation coefficients between the canonical variates and the real variables (Hinkle, et. al 1987).

These correlation coefficients are known as loadings which represent the importance of the original variables in deriving the canonical variates (Hair, et. al 1987). These canonical loadings measure the linear correlation between the original observed variable in either the independent or dependent variable set and its respective canonical variate. Therefore, the canonical loadings describe the variance that the observed variable shares with its canonical variate and

so is interpreted by assessing the contribution of each variable to each canonical function (Hair et. al 1987).

It is these loadings, or roots, which are used to interpret the results of the relationships found to exist between the dependent and independent variables of this study. Thus, canonical roots may provide the foundation for the formulation of specific market segments, each possessing nutrition-oriented characteristics which preface the development of marketing implications for both the practitioner and the theorist of the marketing discipline.

Chapter Summary

This chapter has presented a discussion of the methodological framework for this study. The measures and scales for this research were presented in terms of the dependent and independent variable sets. The sample design including sample size and sample procedure was then presented. A discussion of the survey instrument was also included.

The chapter concluded with an explanation of the multivariate data analysis technique of canonical correlation used to analyze and interpret the gathered data.

Chapter IV

RESULTS AND ANALYSIS

Chapter Overview

Chapter IV begins with a general discussion of the analysis procedures. The analysis of each hypothesized relationship generated in Chapter III is then presented with respect to each of the three dependent variables of patronage behavior.

General Description

The sample size for this study consisted of 100 respondents. A total of 110 households were approached and asked to complete the questionnaire. However, 10 households refused to participate in the survey, citing time constraints or a lack of interest in the topic as reasons. Thus, this survey yielded a 91% response rate (100/110).

The data were analyzed using canonical correlation that involves the simultaneous factor analysis of two sets of data resulting in maximum correlations between the two variable sets (Christensen 1983). The resulting factors (i.e., canonical loadings) were then correlated, resulting in canonical correlations which were tested for significance at

the $p=0.05$ level for each variable set. The production of canonical variates was carried out until all possible significant roots were extracted. Each extracted root represents a pattern of either consumers' behaviors, attitudes, concerns or demographic characteristics associated with their nutrition-oriented restaurant and store patronage behaviors, and food purchasing behaviors. The strength of the canonical correlation was used to interpret and describe these resulting patterns.

The following section of data analysis results are presented in terms of each of the three dependent variables of patronage behavior. Thus, restaurant patronage, grocery store patronage and health food store patronage were analyzed, interpreted and discussed with respect to the independent variables of attitudes and concerns toward nutrition, attitudes toward preventive health and demographics.

Summary of Descriptive Statistics Results

Prior to reporting the results of the canonical correlation, a summary of descriptive statistics is presented. Table 1 presents the means and standard deviations of the variables measured in this study. The food purchase and retail patronage behaviors of respondents include a mean weekly health food expenditure of 19.55% of the total food budget and a mean purchase of high fiber foods of 11.03% of the total weekly food budget. Results indicate a mean of 6.15 shopping

TABLE 1

Summary of Results: Means and Standard Deviations

<u>Purchase Behavior Variables</u>	<u>Mean</u>	<u>Standard Deviation</u>
1. Weekly food products expenditure (dollars)	85.42	34.90
2. Weekly health food products expenditure (percent)	19.55	18.25
3. Purchase of food based on fiber content (percent)	11.03	10.94
4. Retail outlet used for majority of food shopping	1.02	0.20
5. Shop specifically for nutritious foods (out of 10)	6.15	3.21
6. Shop at additional stores to purchase nutritious foods (percent)	36.64	32.06
7. Retail outlet used for additional food shopping	2.26	0.93
8. Food items chosen by nutritional value (out of 10)	6.33	2.63
9. Meals per week eaten at a restaurant	3.17	2.22
10. Meals per week eaten at a restaurant offering healthy food	2.17	1.80
11. Foods purchased based on nutritional content (percent)	57.71	27.27
12. Food products purchased state nutritional value (percent)	57.92	21.50
13. Food products eaten called "healthy food" (percent)	57.33	25.75
14. Visits to health food stores (percent)	23.86	19.19
15. Choosing nutritional foods when dining out (percent)	48.06	31.98
16. Consumption reduction of caffeine (percent)	46.58	37.15
17. Consumption reduction of sweets/desserts (percent)	36.40	29.87
18. Consumption reduction of alcohol (percent)	38.98	41.88
19. Consumption reduction of red meat (percent)	36.91	29.82
20. Consumption reduction of fats (percent)	42.91	26.37
21. Consumption reduction of salt (percent)	39.22	33.01
22. Consumption reduction of fast food (percent)	37.99	32.11
23. Consumption reduction of sugar (percent)	33.90	28.26
24. Consumption reduction of cholesterol (percent)	42.79	28.56
25. Consumption reduction of calories (percent)	31.67	22.18
26. Consumption increase of fresh vegetables (percent)	50.69	30.48
27. Consumption increase of lowfat milk products (percent)	41.21	34.52
28. Consumption increase of whole grains (percent)	42.79	33.22
29. Consumption increase of vitamins (percent)	31.12	32.55
30. Consumption increase of fiber/bran (percent)	44.00	34.01
31. Consumption increase of fresh fruits (percent)	47.15	33.75
32. Consumption increase of fish (percent)	35.12	28.75
33. Consumption increase of poultry (percent)	39.63	27.96
 <u>Attitudes Toward Nutrition Variables</u> (1 = strongly disagree; 5 = strongly agree)	 <u>Mean</u>	 <u>Standard Deviation</u>
1. Importance of maintaining well-balanced diet	4.48	0.50
2. Importance of nutritional content of food	4.15	0.61
3. Carbohydrate foods nutritionally better than proteins	3.20	1.08
4. Usefulness of nutrition information	3.82	0.74
5. Desire of more nutrition information in ads	3.79	0.82
6. Desire of more nutrition information on products	3.98	0.71
7. Nutrition information found is clear and understandable	3.11	0.94
8. Restaurants serve healthier foods now than 5 years ago	3.35	0.86
9. Nutrition information should be required on menus	3.06	0.93
10. Importance of nutrition when eating out	3.51	0.81
11. Well-balanced meal can only be made in the home	2.62	1.06

Table 1 Continued

<u>Concerns Toward Elements Found in Food Products Variables</u> (1=very unconcerned; 5=very concerned)	<u>Mean</u>	<u>Standard Deviation</u>
1. Sugar	3.68	0.83
2. Cholesterol	4.22	0.64
3. Fat	4.26	0.63
4. Preservatives and additives	3.70	0.96
5. Salt	3.86	0.83
6. Calcium	3.86	0.77
7. Iron	3.69	0.83
8. Calories	4.11	0.74
9. Fiber	3.90	0.73
10. Vitamins	3.79	0.77
11. Artificial ingredients	3.74	0.88
<u>Attitudes Toward Preventive Health Variables</u> (1=strongly disagree; 5=strongly agree)	<u>Mean</u>	<u>Standard Deviation</u>
1. Lifestyle changes will prevent serious diseases	4.00	0.82
2. Type of food eaten affects future health	4.20	0.62
3. Choose foods eaten based on effect to body	3.56	0.91
4. Importance of nutrition to long term health	4.29	0.57
5. Foods eaten affect future appearance	3.91	0.77
6. Foods eaten affect future pep and energy	3.86	0.71
7. Excess cholesterol harmful to body and health	4.24	0.73
8. Present diet is nutritionally satisfactory	3.43	0.93
9. Concern for substances found in smoked meats	3.58	0.96
10. Concern for increase of poultry and fish	3.86	0.90
11. Committing to a high nutritional dietary program	4.01	0.77
12. Concern for increase of high fiber foods	3.96	0.83
13. Concern for reduction of high cholesterol foods	4.03	0.75
14. Concern for avoiding additional salt to diet	3.69	0.99
<u>Demographic Variables</u>	<u>Mean</u>	<u>Standard Deviation</u>
1. Gender (1= male, 2=female)	1.64	0.48
2. Marital status (1=single, 2=married, 3=divorced, 4=widowed)	1.98	0.40
3. Age (years)	38.59	9.66
4. Number of children in household	1.64	1.20
5. Number of persons in household	3.15	1.36
6. Level of education	3.87	1.07
7. Type of living dwelling	4.71	0.98
8. Type of radio listenership	2.97	1.71
9. Type of newspaper readership	1.89	1.31
10. Occupation	59.82	20.69
11. Level of household income	4.56	1.48

trips out of 10 specifically for nutritious food products and a mean of 6.33 out of 10 food items chosen based on nutritional value.

Respondents reportedly utilize grocery stores as the retail outlet used for the majority of food shopping, but do patronize health food stores as an additional source of purchasing nutritious food products.

Results of restaurant patronage indicate that respondents eat a mean of 2.17 meals per week at restaurants offering healthy food while choosing nutritional foods when dining out a mean of 48.06% of the time.

Table 1 also presents the reduction and increase in consumption of certain foods. Respondents have reduced their caffeine consumption by a mean of 46.58%, fat consumption by a mean of 42.91% and cholesterol consumption by a mean of 42.79%. Respondents also indicated their increase in consumption of certain foods such as fresh vegetables by a mean of 50.69%, fresh fruits by a mean of 47.15% and fiber and bran by a mean of 44.00%

Consumers' attitudes toward nutrition represent a set of independent variables measured in this study. Respondents indicated agreement to the following statements of the importance of maintaining a well-balanced diet with a mean response of 4.48, the importance of the nutritional content of foods eaten with a mean response of 4.15, desiring more nutrition information on products with a mean of 3.98 and

finding nutrition useful with a mean response of 3.82. Respondents also indicated disagreement with well-balanced meals prepared only in the home with a mean response of 2.62.

Concerns toward certain elements found in food products were also analyzed in this study. Respondents indicated the strongest concern for such food elements as fat with a mean response of 4.26, cholesterol with a mean of 4.22 and calories with a mean response of 4.11.

The variables of attitudes toward preventive health revealed consumers strong agreement with the statements regarding the importance of nutrition to long term health with a mean of 4.29, feeling that excess amounts of cholesterol can be harmful to the body and health with a mean response of 4.24 and believing that the type of food eaten can affect future health with a mean of 4.20.

Finally, demographic variables were analyzed to describe or profile the sample of this study. Results indicate that the majority of respondents were female, married, of middle age, with two children and a relatively small household size, possess a high level of education, own a house, listen to contemporary music, read the local newspapers, belong to a high occupational status and can be characterized by an above average level of income.

TESTS OF HYPOTHESES

Restaurant Patronage

Hypothesis One

Hypothesis one stated that there would be a positive relationship between consumers' attitudes toward nutrition and their patronage behavior of restaurants. The results of the canonical analysis revealed one root that was found to be statistically significant ($p < 0.05$). The canonical R was found to be 0.582, thus, the one significant root represented 58.2% of the shared variance in both variable sets.

Table 2 presents the canonical loadings associated with this relationship. Only the variable loading values $> [.30]$ were included for interpretation and description of the root. The cutoff value of 0.30 is consistent in canonical correlation (Hair, et al. 1987).

This root is described by a pattern of behaviors including choosing to eat food items based on their positive nutritional contribution to the diet, purchasing food items based on the nutritional content of the food, eating a majority of food items referred to as "healthy foods" and choosing to eat at a restaurant based on the nutritional content of the foods offered.

This root is also characterized by consumers who feel it is important to maintain a well-balanced diet, believe the nutritional content of food is important, feel nutrition information is useful in getting the best food value, believe

TABLE 2

Canonical Correlation of Restaurant Patronage
and Attitudes Toward Nutrition

<u>Variables</u>	<u>Canonical Loading</u>
Dependent Set	<u>Root 1</u>
Choosing the majority of food items eaten based on their nutritional content	0.73
Purchasing food products based on the nutritional content of the food	0.86
Eating foods commonly called "healthy food" (whole grains, fresh produce)	0.74
Choosing nutritional foods when eating at a restaurant	0.89
Independent Set	
Importance of maintaining well-balanced diet	0.46
Importance of nutritious content of food	0.81
Usefulness of nutrition information in getting best food value	0.37
Nutritional information found is clear and understandable	0.43
Restaurants serve healthier foods now than 5 years ago	0.36
Importance of nutrition when eating away from home	0.76
Canonical R	0.582
Degrees of freedom	70.00
Probability level	0.050

the nutritional information available is clear and understandable, feel that restaurants serve healthier foods now than five years ago and believe nutrition is important when eating away from the home.

This significant root supports the hypothesis that attitudes toward nutrition are correlated with consumers' patronage of restaurants offering nutritious food selections on the menu.

Hypothesis Two

This hypothesis stated that consumers' concerns toward nutrition regarding certain elements found in food products would be positively related to the patronage of restaurants based on the offering of nutritious food selections. The results of the canonical analysis produced six roots, of which one root was found to be statistically significant ($p < 0.000$). This one root was responsible for 67.9% of the variance in both variable sets.

Table 3 presents the loadings used to describe the pattern of behaviors and concerns regarding the derived root. This root is characterized by a pattern of behaviors including choosing to eat food items based on the nutritional value of the food, eating few meals away from the home (however, when choosing to eat at a restaurant, the nutritional content of the foods offered is important), and eating a high percentage of healthy foods.

TABLE 3

Canonical Correlation of Restaurant Patronage and
Concerns Toward Certain Elements in Food Products Eaten

<u>Variables</u>	<u>Canonical Loading</u>
Dependent Set	<u>Root 1</u>
Choosing the majority of food items eaten based on their nutritional content	0.82
Meals per week eaten at a restaurant	- 0.72
Meals per week eaten at a restaurant that offers health-oriented foods	- 0.39
Purchasing food products based on the nutritional content of the food	0.69
Eating foods commonly called "healthy food" (whole grains, fresh produce)	0.66
Choosing nutritional foods when eating at a restaurant	0.42
Independent Set	
Concern for sugar	0.33
Concern for cholesterol	0.32
Concern for fat	0.44
Concern for salt	0.38
Concern for calcium	0.41
Concern for calories	0.30
Concern for fiber	0.76
Concern for vitamins	0.71
Concern for artificial ingredients	0.42
Canonical R	0.679
Degrees of freedom	66.00
Probability level	0.000

This root also reflected a pattern of consumers with strong concerns for the sugar, cholesterol, fat, salt, calcium, calorie, vitamin and artificial ingredient content of foods consumed.

This significant root supports the hypothesis that concerns toward the nutritional value of the elements in food are related to consumers' patronage of restaurants based on the nutritious food selections offered.

Hypothesis Three

This hypothesis suggested that attitudes toward preventive health would be positively related to the patronage behavior of restaurants based on the offering of nutritious food menu selections. The analysis revealed six roots, of which one was found to be significant ($p < 0.000$). This significant root accounted for 85.1% of the variance in both variable set

Table 4 presents the canonical loadings used to describe the pattern of behaviors and attitudes toward preventive health associated with the derived root. This root is characterized by high loadings indicating behaviors of choosing to eat food items based on their nutritional content, purchasing food items based on their nutritional content, eating a majority of "healthy food" and choosing to eat at a restaurant based on the nutritional content of foods served.

This root is also described by a pattern of attitudes toward preventive health which include consumers' feeling

TABLE 4

Canonical Correlation of Restaurant Patronage and
Attitudes Toward Preventive Health

<u>Variables</u>	<u>Canonical Loading</u>
Dependent Set	<u>Root 1</u>
Choosing the majority of food items eaten based on their nutritional content	0.89
Purchasing food products based on the nutritional content of the food	0.91
Eating foods commonly called "healthy food" (whole grains, fresh produce)	0.90
Choosing nutritional foods when eating at a restaurant	0.75
Independent Set	
Lifestyle changes will prevent serious diseases	0.90
Importance of nutrition to long term health	0.39
Nutritional satisfaction of present diet	0.78
Concern for consumption increase of poultry and fish due to lower fat content	0.37
Concern for committing to a high nutritional dietary program	0.66
Concern for cholesterol reduction to reduce threat of heart disease	0.37
Canonical R	0.851
Degrees of freedom	84.00
Probability level	0.000

that nutrition is important to long term health, believing their present diet is nutritionally satisfactory, expressing a concern for increasing the consumption of lean meats (poultry, fish), believing in committing to a dietary plan that ensures proper nutrition and expressing a concern for reducing the intake of foods high in cholesterol.

This significant canonical root supports the hypothesized relationship between consumers' attitudes toward preventive health and their patronage of restaurants which offer nutritious food selections.

Hypothesis Four

Hypothesis four suggested that demographic characteristics would be significantly related to the patronage behavior of restaurants which offer nutritious food products to customers. For this hypothesis, the canonical analysis produced six roots, of which one was found to be statistically significant ($p < .025$). This extracted root represented 58.6% of the variance in both variable sets.

Table 5 reports the loadings used in describing the behavioral and demographic patterns of the derived root. This root is characterized by consumer behaviors of choosing to eat food items based on their nutritional content, eating a majority of "healthy foods", purchasing food items based on their nutritional content and choosing to eat at a restaurant based on the nutritional content of foods served.

TABLE 5

Canonical Correlation of Restaurant Patronage and Demographics

<u>Variables</u>	<u>Canonical Loading</u>
Dependent Set	<u>Root I</u>
Choosing the majority of food items eaten based on their nutritional content	0.79
Purchasing food products based on the nutritional content of the food	0.58
Eating foods commonly called "healthy food" (whole grains, fresh produce)	0.38
Choosing nutritional foods when eating at a restaurant	0.77
Independent Set	
Age (in years)	0.40
Number of children in household	0.50
Educational level	0.61
Readership of local newspaper	0.33
Total household income	0.30
Canonical R	0.586
Degrees of freedom	84.00
Probability level	0.025

Demographic characteristics associated with this significant root suggest that these consumers are of middle age, have children, possess a high education level, earn a high level of income and are of a professional or white collar occupation level.

This significant root supports the hypothesis that a set of demographic characteristics is related to consumers' patronage of restaurants based on the nutritional value of food items available.

Summary

The patronage of restaurants offering healthy or nutritious food selections was found to be significantly related to attitudes and concerns toward nutrition, attitudes toward preventive health and to a set of demographic characteristics. Based on the four significant roots derived from the canonical analysis, an overall general description of the nutrition motivated restaurant patron is given.

The highest loading values for each of the independent variable sets are responsible for contributing the most descriptive power to the pattern. In general, consumers who patronize restaurants based on the nutritional contribution of the food items offered can be characterized as believing in the importance of nutrition when eating away from the home, possessing a strong concern for the fiber and vitamin content of foods eaten, choosing the types of food eaten based on the food's contribution to their health, believing

their present diet is nutritionally satisfactory and finally, possessing a high level of education.

Grocery Store Patronage

Hypothesis Five

Hypothesis five suggested that a positive relationship would exist between consumers' attitudes toward nutrition and their patronage behavior regarding the food items purchased in grocery stores. Results of the canonical analysis revealed one root which was found to be statistically significant ($p < 0.009$). The canonical R was found to be .717, thus, the one significant root accounted for 71.7% of the variance of both variable sets.

Table 6 reveals the canonical loadings used in describing the pattern of patronage and purchase behaviors and attitudes toward nutrition associated with the derived root. This root is characterized by high loadings indicating the purchase of health foods (brown rice, whole grain bread) and other foods based on their high fiber content. These consumers also specifically shopped for nutritious food products at grocery stores and chose to shop at additional food stores for specific nutritious food products and purchased food items based on the nutritional content of the food.

This root is also characterized by a group of attitudinal factors including agreeing with the importance of maintaining a well-balanced diet, expressing the impor-

TABLE 6

Canonical Correlation of Grocery Store Patronage and
Attitudes Toward Nutrition

<u>Variables</u>	<u>Canonical Loading</u>
Dependent Set	<u>Root I</u>
Purchase of health food (brown rice, whole wheat pasta, whole grain bread)	0.45
Purchase of food based on high fiber content	0.37
Specifically shop for nutritious food products	0.69
Shop at additional stores to purchase nutritious food products	0.73
Type of additional store patronized	- 0.41
Choosing the majority of food items eaten based on their nutritional content	0.82
Purchasing food products based on the nutritional content of the food	0.94
Food products bought state the nutritional value	0.42
Eating foods commonly called "healthy food" (whole grains, fresh produce)	0.82
Independent Set	
Importance of maintaining well-balanced diet	0.47
Importance of nutritional content of food	0.85
Usefulness of nutrition information in getting best food value	0.42
Favor more nutritional information in food advertisements	0.33
Nutritional information found is clear and understandable	0.47
Importance of nutrition when eating away from home	0.64
Canonical R	0.717
Degrees of freedom	121.00
Probability level	0.009

tance of the nutritional content of food, feeling nutritional information is useful in getting the best food value, and feeling that the nutritional information found is clear and understandable.

This significant root supports the hypothesized relationship between consumers' attitudes toward nutrition and their patronage of grocery stores for the purpose of purchasing nutritious food products.

Hypothesis Six

This hypothesis stated that consumers' concerns toward certain elements found in food products would be positively related to the patronage of nutritious food products at grocery stores. Results of the canonical analysis revealed three roots which were found to be statistically significant at the 0.05 level.

These roots are presented in Table 7 along with their canonical loadings. Root I represents a pattern of behaviors including specifically shopping for nutritious food products with a high loading of 0.86, choosing to eat foods based on the positive nutritional contribution of the food, and purchasing food items based on their nutritional value.

This root is also characterized by consumers' concerns for the fiber and vitamin content of food (loading highly with values of 0.64 and 0.78, respectively). This root was supported by the significant but lower loadings associated with purchasing the majority of food products at a grocery

TABLE 7

Canonical Correlation of Grocery Store Patronage and
Concerns Toward Certain Elements in Food Products Eaten

<u>Variables</u>	<u>Canonical Loading</u>		
	<u>Root I</u>	<u>Root II</u>	<u>Root III</u>
Dependent Set			
Weekly food products expenditure		- 0.59	
Purchase of food based on high fiber content	0.35		
Retail outlet used for majority of food shopping	- 0.48	0.38	0.72
Specifically shop for nutritious food products	0.86		
Shop at additional stores to purchase nutritious food products	0.36	- 0.48	0.34
Choosing the majority of food items eaten based on their nutritional content	0.71		0.34
Purchasing food products based on the nutritional content of the food	0.63		
Food products bought state the nutritional value			- 0.41
Eating foods commonly called "healthy food" (whole grains, fresh produce)	0.65		
Independent Set			
Concern for sugar		0.52	
Concern for cholesterol	0.43	0.40	
Concern for fat	0.48		
Concern for preservatives and additives	0.30	0.75	
Concern for salt	0.54	0.35	
Concern for calcium	0.40		
Concern for iron	0.32		
Concern for calories	0.42	0.34	0.40
Concern for fiber	0.64		0.41
Concern for vitamins	0.78	0.74	0.36
Concern for artificial ingredients	0.50		
Canonical R	0.728	0.622	0.596
Degrees of freedom	121.00	100.00	81.00
Probability level	0.000	0.002	0.050

store and also shopping at an additional store (for this root a grocery store) to purchase nutritious food products. Root I explained 72.8% of the common variance underlying this hypothesized relationship between the two variable sets and was found to be a statistically significant root ($p < 0.000$).

Canonical root II also suggested that this group of consumers did the majority of their food shopping at grocery stores with a loading of 0.38, but with nutritional food element concerns different from that of root I. The concerns loading most highly in this variate were the preservative, additive and artificial ingredient content of food products eaten (0.75 and 0.74, respectively). Root II explained 62.2% of the variance between the two variable sets and was found to be a statistically significant root ($p < 0.002$).

Canonical root III was characterized by a high loading (0.72) for purchasing the majority of food products at grocery stores and by lower loadings indicating the majority of food products purchased and eaten are based on the nutritional content. This root also reflected a pattern of consumers expressing concerns for the iron, calorie and fiber content of foods eaten. Root III explained 59.6% of the variance between the two variable sets and was found to be significant at the $p < 0.05$ level.

These three significant canonical roots support the hypothesis that concerns toward the nutritional value of the

elements in food are related to consumers' patronage of grocery stores.

Hypothesis Seven

This hypothesis suggested that consumers' attitudes toward preventive health would be positively related to their grocery store patronage behavior based on the store's offering of nutritious food products. Results of the canonical analysis revealed eleven roots, of which two roots were found to be statistically significant (root I $p < 0.000$; root II $p < 0.04$).

Table 8 reveals the canonical loadings used for interpretation of each root. Root I is patterned by behaviors including shopping specifically for nutritious foods, purchasing and consuming a high percentage of food based on its nutritional value and shopping at additional grocery stores to purchase these nutritious foods. This root is also characterized by high loadings for choosing the types of food eaten by their effects on health and body and by expressing a belief in the nutritionally satisfactory state of this group's present diet. Root I was responsible for 88.3% of the shared variance between the two variable sets.

Canonical root II was also characterized by loadings revealing that these consumers purchase the majority of their food products at grocery stores and purchase food based on the nutritional content of the food, but with an emphasis on attitudes toward preventive health different from that of

TABLE 8

Canonical Correlation of Grocery Store Patronage and Attitudes Toward Preventive Health

<u>Variables</u>	<u>Canonical Loading</u>	
	<u>Root I</u>	<u>Root II</u>
Dependent Set		
Weekly food products expenditure		- 0.46
Purchase of health food (brown rice, whole wheat pasta, whole grain bread)	0.32	0.34
Purchase of food based on high fiber content		0.35
Retail outlet used for majority of food shopping	- 0.43	0.41
Specifically shop for nutritious food products	0.55	0.33
Shop at additional stores to purchase nutritious food products	0.79	
Choosing the majority of food items eaten based on their nutritional content	0.83	
Purchasing food products based on the nutritional content of the food	0.81	0.49
Food products bought state the nutritional value	0.37	
Eating foods commonly called "healthy food" (whole grains, fresh produce)	0.87	
Independent Set		
Choose types of food eaten by their contribution to health and body		0.62
Type of food eaten can affect future health		0.58
Lifestyle changes will prevent serious diseases	0.85	0.35
Importance of nutrition to long term health	0.38	
Foods eaten will affect future pep and energy		0.36
Excess cholesterol can produce harmful effects to body		0.33
Nutritional satisfaction of present diet	0.68	0.32
Concern for cancer causing substances found in smoked meats		0.66
Concern for consumption increase of poultry and fish due to lower fat content		0.48
Concern for committing to a high nutritional dietary program	0.65	
Concern for cholesterol reduction to reduce threat of heart disease		0.44
Canonical R	0.883	0.662
Degrees of freedom	154.00	130.00
Probability level	0.000	0.040

root I. This group of grocery store shoppers are motivated by the belief that making certain lifestyle changes (including changes in diet) will prevent serious diseases and expressed a concern of the cancer causing substances found in certain smoked meats. Root II accounted for 66.2% of the variance in both variable sets.

The finding of these two significant canonical roots supports the hypothesized relationship between consumers' attitudes toward preventive health and their patronage of grocery stores based on the nutritional value of the food products offered.

Hypothesis Eight

This hypothesis suggested that demographic characteristics would be significantly related to consumers' patronage behavior of grocery stores based on the store's offering of nutritious food products. Results of the canonical analysis revealed two roots which were found to be significant (root I $p < 0.000$; root II $p < 0.03$).

Table 9 reports the loadings used in describing the behavioral and demographic patterns of the two derived roots. Root I is patterned by behaviors including shopping specifically for nutritious food products with a high loading of 0.79 and purchasing food items based on its nutritional value with a moderate loading of 0.55. Demographic characteristics associated with this root suggest that these consumers have children living in the household, read food store circulars,

TABLE 9

Canonical Correlation of Grocery Store Patronage and
Demographics

<u>Variables</u>	<u>Canonical Loading</u>	
	<u>Root I</u>	<u>Root II</u>
Dependent Set		
Weekly food products expenditure	0.49	0.78
Purchase of health food (brown rice, whole wheat pasta, whole grain bread)	0.49	
Shop at additional stores to purchase nutritious food products	0.79	
Type of additional store patronized	- 0.36	
Choosing the majority of food items eaten based on their nutritional content	0.45	
Purchasing food products based on the nutritional content of the food	0.55	
Independent Set		
Number of children in household	0.48	0.32
Number of persons in household		0.79
Educational level	0.62	- 0.36
Readership of food store circulars	0.36	
Occupation		- 0.38
Canonical R	0.705	0.659
Degrees of freedom	154.00	130.00
Probability level	0.000	0.030

and with the highest loading of 0.62, possess a high level of education. Root I was responsible for 70.5% of the shared variance between the two variable sets.

Canonical root II was also characterized by a high loading of 0.78 indicating that these consumers also specifically shop for nutritional food products when patronizing grocery stores, but with a demographic profile different from that of root I. This group of nutrition seeking grocery store shoppers can be characterized by having a large family size, but not a high educational level nor a high occupational level. Root II accounted for 66.2% of the variance in both variable sets. The finding of these two significant canonical roots supports the hypothesis that a set of demographic characteristics is related to consumers' patronage of grocery stores based on the nutritional value of the food products offered.

Summary

The patronage of grocery stores based on the offering of nutritious food products was found to be significantly related to attitudes and concerns toward nutrition, attitudes toward preventive health and to a set of demographic characteristics. Based on the eight significant roots derived from the canonical analysis, an overall general description of the nutrition motivated grocery store patron is given.

The highest loading values for each of the independent variable sets were responsible for contributing the most de-

scriptive power to the pattern. In general, consumers who patronize grocery stores based on the nutritional contribution of the food items offered can be characterized as feeling the nutritional content of food is important, expressing concern for the vitamin, artificial ingredient, preservative, and fiber content of foods eaten, choosing the types of foods eaten by their nutritional contribution to health and body, believing that making certain lifestyle changes (including diet) will prevent serious diseases, possessing a high level of education, and having a large family size.

Health Food Store Patronage

Hypothesis Nine

Hypothesis nine suggested a positive relationship between consumers' attitudes toward nutrition and their patronage behavior regarding the food products purchased at health food stores. The results of the canonical analysis revealed one root found to be statistically significant ($p < 0.008$). The canonical R was found to be .722, thus this one root accounted for 72.2% of the variance in both variable sets.

Table 10 reports the loadings associated with this relationship. After viewing the highest loading values, the characterization of the patterned root becomes possible. This root is described by a pattern of behaviors including

TABLE 10

Canonical Correlation of Health Food Store Patronage and Attitudes Toward Nutrition

<u>Variables</u>	<u>Canonical Loading</u>
Dependent Set	<u>Root I</u>
Purchase of health food (brown rice, whole wheat pasta, whole grain bread)	0.46
Purchase of food based on high fiber content	0.42
Specifically shop for nutritious food products	0.70
Shop at additional stores to purchase nutritious food products	0.69
Type of additional store patronized	- 0.37
Choosing the majority of food items eaten based on their nutritional content	0.81
Purchasing food products based on the nutritional content of the food	0.93
Eating foods commonly called "healthy food" (whole grains, fresh produce)	0.82
Visits to health food stores	0.78
Independent Set	
Importance of maintaining well-balanced diet	0.53
Importance of nutritional content of food	0.87
Usefulness of nutrition information in getting best food value	0.49
Favor more nutritional information in food advertisements	0.39
Nutritional information found is clear and understandable	0.49
Restaurants serve healthier foods now than 5 years ago	0.30
Importance of nutrition when eating away from home	0.65
Canonical R	0.722
Degrees of freedom	110.00
Probability level	0.008

specifically shopping for nutritious food products (such as whole wheat bread, high fiber cereal or low-fat milk products), purchasing and eating food items based on their positive nutritional contribution to the diet, and purchasing these nutritional food products at a health food store.

This root is also characterized by consumers who feel it is important to maintain a well-balanced diet, believe the nutritional content of food is important, feel nutritional information is useful in getting the best food value and feel the nutritional information available is clear and understandable.

This significant root supports the hypothesis that attitudes toward nutrition are related to consumers patronage of health food stores.

Hypothesis Ten

This hypothesis stated that consumers' concerns toward nutrition regarding certain elements found in food products eaten would be positively related to the patronage of health food stores. Results of the canonical analysis produced two roots which were found to be statistically significant (root I $p < 0.000$; root II $p < 0.05$).

These roots are presented in Table 11 along with their loadings. Root I represents a pattern of behaviors including specifically shopping for nutritious food products with a high loading of 0.87, purchasing and eating food products based on their nutritional value with loadings of 0.64 and

TABLE 11

Canonical Correlation of Health Food Store Patronage and Concerns Toward Certain Elements in Food Products Eaten

<u>Variables</u>	<u>Canonical Loading</u>	
	<u>Root I</u>	<u>Root II</u>
Dependent Set		
Weekly food products expenditure		0.51
Purchase of food based on high fiber content	0.38	
Specifically shop for nutritious food products	0.87	
Shop at additional stores to purchase nutritious food products	0.30	0.73
Type of additional store patronized		- 0.43
Choosing the majority of food items eaten based on their nutritional content	0.71	
Purchasing food products based on the nutritional content of the food	0.64	0.32
Eating foods commonly called "healthy food" (whole grains, fresh produce)	0.65	0.34
Visits to health food stores	0.57	0.48
Independent Set		
Concern for sugar	0.32	
Concern for cholesterol	0.55	
Concern for fat	0.57	
Concern for preservatives and additives	0.44	- 0.71
Concern for salt	0.55	- 0.35
Concern for calcium	0.41	
Concern for iron	0.43	
Concern for calories	0.41	0.30
Concern for fiber	0.64	0.33
Concern for vitamins	0.77	
Concern for artificial ingredients	0.64	- 0.59
Canonical R	0.722	0.577
Degrees of freedom	110.00	90.00
Probability level	0.000	0.050

0.71, and choosing to patronize health food stores which loaded with a 0.57 value. This root is also characterized by consumers' concerns for the fiber, vitamin and artificial ingredient content of foods eaten. Root II explained 57.7% of the variance between the two variable sets.

The resulting two significant canonical roots support the hypothesis that concerns toward the elements found in food products are related to consumers' patronage of health food stores.

Hypothesis Eleven

Hypothesis eleven stated that consumers' attitudes toward preventive health would be positively related to their health food store patronage behavior. Results of the canonical analysis revealed ten roots, of which one root was found to be statistically significant ($p < 0.000$). This one root accounted for 86.4% of the variance shared in both variable sets.

Table 12 reveals the canonical loadings used to describe the pattern of behaviors and attitudes toward preventive health associated with the derived root. This root is characterized by high loadings indicating behaviors of shopping at additional stores to purchase nutritious food products, purchasing and eating a majority of nutritious foods, and shopping at health food stores to purchase these food items.

This root is also described by a pattern of attitudes toward preventive health. Loading highly on this variate

TABLE 12

Canonical Correlation of Health Food Store Patronage and
Attitudes Toward Preventive Health

<u>Variables</u>	<u>Canonical Loading</u>
Dependent Set	<u>Root 1</u>
Purchase of health food (brown rice, whole wheat pasta, whole grain bread)	0.35
Specifically shop for nutritious food products	0.59
Shop at additional stores to purchase nutritious food products	0.80
Choosing the majority of food items eaten based on their nutritional content	0.87
Purchasing food products based on the nutritional content of the food	0.87
Eating foods commonly called "healthy food" (whole grains, fresh produce)	0.90
Visits to health food stores	0.73
Independent Set	
Lifestyle changes will prevent serious diseases	0.88
Importance of nutrition to long term health	0.38
Nutritional satisfaction of present diet	0.72
Concern for consumption increase of poultry and fish due to lower fat content	0.34
Concern for committing to a high nutritional dietary program	0.67
Concern for cholesterol reduction to reduce threat of heart disease	0.33
Canonical R	0.864
Degrees of freedom	140.00
Probability level	0.000

were consumers feeling that types of food eaten will affect their health in the future, believing their present diet is nutritionally satisfactory, expressing strong concern about committing to a dietary plan ensuring proper nutrition and expressing a concern for reducing the intake of foods high in cholesterol.

This significant canonical root supports the hypothesized relationship between consumers' attitudes toward preventive health and their patronage of health food stores.

Hypothesis Twelve

This hypothesis suggested that demographic characteristics would be significantly related to consumers' patronage behavior of health food stores based on the store's offering of nutritious food products. For this hypothesis, the canonical analysis produced two roots which were found to be significant (root I $p < 0.000$; root II $p < 0.017$).

Table 13 reports the loadings used in describing the behavioral and demographic patterns of the two derived roots. Root I is patterned by behaviors including purchasing and consuming food that is considered to be health food (brown rice, whole grain bread) on a weekly basis, shopping at additional stores to purchase nutritious food products desired, and shopping at health food stores. Demographic characteristics associated with this root suggest that these consumers have children living in the household and possess a high educational level (college graduate). Root I was responsible

TABLE 13

Canonical Correlation of Health Food Store Patronage and
Demographics

<u>Variables</u>	<u>Canonical Loading</u>	
	<u>Root I</u>	<u>Root II</u>
Dependent Set		
Weekly food products expenditure	0.45	0.84
Purchase of health food (brown rice, whole wheat pasta, whole grain bread)	0.48	
Shop at additional stores to purchase nutritious food products	0.78	
Type of additional store patronized	- 0.39	
Choosing the majority of food items eaten based on their nutritional content	0.37	
Purchasing food products based on the nutritional content of the food	0.52	
Visits to health food stores	0.41	
Independent Set		
Number of children in household	0.39	0.36
Number of persons in household		0.83
Educational level	0.63	
Occupation		- 0.40
Canonical R	0.707	0.658
Degrees of freedom	140.00	117.00
Probability level	0.000	0.017

for 70.7% of the shared variance between the two variable sets.

Canonical root II was characterized by a high loading of 0.84 indicating that these consumers spend a high amount of money on food products per week (at least \$150 per week), but also choose to patronize health food stores to fill their nutritional food products needs. This group of health food store shoppers can be characterized by children living in the household, by having a large household size but by possessing a low to middle class occupational level. Root II accounted for 65.8% of the variance in both variable sets.

The finding of these two significant canonical roots supports the hypothesis that a set of demographic characteristics is related to consumers' patronage of health food stores.

Summary

The patronage of health food stores based on the offering of nutritious food products was found to be significantly related to attitudes toward nutrition, concerns toward the elements of food products, attitudes toward preventive health and to a set of demographic characteristics. Based on the six significant roots derived from the canonical analysis, an overall general description of the nutrition motivated health food store patron is given.

The highest loadings for each of the independent variable sets were responsible for contributing the most de-

scriptive power to the overall pattern. In general, consumers who patronize health food stores can be characterized as believing the nutritional content of food is important, expressing concern for the fiber, vitamin and artificial ingredient content of foods eaten, feeling that the type of food eaten can affect future health, possessing a high level of education, and having a large family size.

Additional Analyses

Although no formal hypothesis was stated regarding the possible relationship between the consumption increase or decrease of certain types of foods and consumers' concerns toward the elements in food products, these two variable sets were submitted to a canonical analysis. Results of this analysis produced one statistically significant root ($p < 0.002$), thus revealing a relationship between food consumption behavior and concerns toward certain elements in foods eaten.

Table 14 presents the significant loadings of both variable sets. Recall that food consumption behavior was measured in terms of a reduction in consumption of particular food products and an increase in consumption of particular food products. However, the results revealed that only the behavior of consumption reduction was found to be significantly related to concerns toward certain elements in food products.

TABLE 14

Canonical Correlation of Food Consumption Behavior and
Concerns Toward Certain Elements in Food Products Eaten

<u>Variables</u>	<u>Canonical Loading</u>
Dependent Set	<u>Root 1</u>
Consumption reduction of sweets/desserts	0.39
Consumption reduction of fats	0.36
Consumption reduction of fast food	0.44
Consumption reduction of sugar	0.57
Consumption reduction of calories	0.42
Independent Set	
Concern for sugar	0.31
Concern for cholesterol	0.34
Concern for fat	0.77
Concern for preservatives and additives	0.47
Concern for calories	0.47
Concern for fiber	0.54
Concern for vitamins	0.42
Concern for artificial ingredients	0.38
Canonical R	0.600
Degrees of freedom	198.00
Probability level	0.002

This root reflected a pattern of consumption reductions of fast foods, sugar and calories, possessing the highest loadings. This root also revealed strong concerns for the fat, caloric and fiber content of foods consumed.

This significant relationship found between consumers' consumption reduction of certain elements in foods poses implications for this study. A possible explanation of the significant finding of consumption reduction and the non-significant finding of consumption increase is included in the general discussion in Chapter V.

Chapter Summary

This chapter presented the results of a canonical correlation analysis testing the hypothesized relationships presented in Chapter III. The statistical significance of each derived canonical root was presented and then a description of the specific patterns of behaviors, attitudes, concerns and demographics was given.

The next chapter provides a general discussion of the conclusions of this study. Chapter V includes theoretical and managerial implications stemming from this research. Limitations of this study, as well as areas for future research, are presented.

Chapter V

DISCUSSION AND CONCLUSIONS

Chapter Overview

Chapter V begins with a general summation of the results of the tests of hypotheses for this study. The chapter then continues with a general discussion of these results and relates them with both conceptual and empirical research previously discussed in Chapter II.

Limitations of this research as well as theoretical and managerial implications stemming from this study are presented. The chapter concludes with possible areas for future research.

Hypotheses and Summary of Results

Hypothesis one suggested that there would be a positive relationship between consumers' attitudes toward nutrition and their patronage behavior of restaurants. Results of the canonical correlation supported this relationship found to be statistically significant.

The second hypothesis, which stated consumers' concerns toward certain elements found in food products would be pos-

itively related to the patronage of restaurants based on the offering of nutritious food selections, was supported. The resulting canonical analysis produced one root found to be statistically significant.

Hypothesis three proposed that a positive relationship would exist between attitudes toward preventive health and the patronage behavior of restaurants. The resulting test supported this hypothesis by revealing one statistically significant canonical root.

Hypothesis four, which predicted that there would be a positive relationship between a set of demographic characteristics and the patronage behavior of restaurants which offer nutritious menu selections, was supported by analysis results.

Hypothesis five suggested that there would be a positive relationship between consumers' attitudes toward nutrition and their patronage behavior of grocery stores. Results of the canonical analysis supported this relationship.

The sixth hypothesis, which stated consumers' concerns toward certain elements found in food products would be positively related to their patronage behavior of grocery stores, was supported by analysis results.

Hypothesis seven proposed that a positive relationship would exist between attitudes toward preventive health and grocery store patronage. The resulting test supported this

hypothesis by revealing two statistically significant canonical roots.

Hypothesis eight, which predicted that there would be a positive relationship between a set of demographic characteristics and consumers' patronage behavior of grocery stores based on the store's offering of nutritious food products, was supported. The canonical analysis produced two roots found to be significant.

Hypothesis nine suggested that there would be a positive relationship between consumers' attitudes toward nutrition and their patronage behavior of health food stores. Results of the canonical analysis supported this relationship.

The tenth hypothesis, which stated consumers' concerns toward certain elements found in food products would be positively related to their patronage behavior of health food stores, was supported. Results of the analysis produced two statistically significant roots.

Hypothesis eleven proposed that a positive relationship would exist between attitudes toward preventive health and the health food store patronage. The resulting test supported this hypothesis by revealing a significant relationship.

The final hypothesis, number twelve, predicted that there would be a positive relationship between a set of demographic characteristics of consumers and their patronage behavior of health food stores. Results produced two sta-

tistically significant roots, thus supporting this relationship.

General Discussion

Results of this research support the general premise that overall positive nutritional beliefs and concerns serve to motivate consumers' patronage behavior in choosing to shop at a retail outlet offering nutritious food products. Results of this study also provide support for the linkages between the variables in the conceptual model of patronage behavior presented in Chapter II. An important finding of this study was the strong support for the link between attitudes and behavior.

Chapter II presented a conceptual model of health and nutrition oriented patronage behavior along with an explanation of the hypothesized linkages among the variables. Results of this research support these linkages among the attitude and behavior variables.

Consumers' attitudes toward preventive health were found to impact upon their food purchase decisions, thus influencing their patronage choices of retail food outlets. Thus, these attitudes influence where consumers choose to purchase food products.

Another component of the conceptual model was consumers' attitudes toward nutrition. Results of this research provided support for the linkage among attitudes toward nutri-

tion and consumers' decisions to patronize grocery stores, health food stores, and restaurants based on the nutritional value of food products offered.

Results of this research also provided support for consumers' concerns toward certain elements found in foods influencing their purchase of nutritious food products in the three food retail outlets. These concerns serve to motivate and influence consumers retail patronage behavior.

The model also included the component of demographics. Results of this study support a linkage between a set of demographic variables and consumers' patronage behavior of grocery stores, health food stores and restaurants. These demographic characteristics contributed to the description of consumers whose nutritional concerns serve to motivate their choice of retail food outlets.

The linkages among the conceptual model of patronage behavior were supported in this research as revealed in the analysis results. The following is a discussion of both theoretical and empirical findings of previous studies as related to this research.

Chapter II also presented a discussion of the patronage behaviors of consumers regarding food retail establishments. Patronage theory suggests that store images are extremely important when choosing to patronize a retail establishment. Calantone (1978) reported that consumers will consider shopping in only those stores in which the store image is sup-

portive with the benefits sought by the shopper. This finding is generalized to and found to be supported by the results of this research. Shoppers with strong nutritional concerns reported they chose to patronize health food stores because of the "natural and healthy" food items offered. Thus, these health food store shoppers feel that the image of these stores is supportive with the ideal benefits (specific nutritious food products) sought.

A study by Pessemier (1980) found that stores possessing important attributes to the shopper are always assumed to be more preferred and more patronized. The findings of this recent study are supported by results of this research regarding the health food store patron. While not directly hypothesized, it is expected that shoppers with strong concerns and attitudes toward nutrition and health will find the health food store to offer more sought after attributes, thus patronizing these stores more than shoppers with indifferent attitudes and concerns toward these issues. However, results do indicate that the nutrition oriented consumer seeking certain health foods (attributes) chooses to shop at retail establishments (health food stores) specifically designed to fill such sought attributes.

Although shoppers may find these same attributes offered by grocery stores, results of this study indicate that there are specific reasons for which some consumers choose to supplement their weekly grocery shopping with visits to health

food stores. While this study did not specifically measure these differences, it is proposed that perhaps health food stores offer more variety in healthy or natural foods, or possess knowledgeable salespeople to aid in the food selection process. Further research measuring the specific differences in these two retail outlet shoppers may prove to offer insights into shoppers' patronage choices.

Current literature also suggested that consumers are expressing a desire to improve their overall health. A study by Rowe (1987) reported the avoidance of heart disease and cancer as reasons for consumers' increased concern in improving or changing the nutritional value of the diet. Rowe's study indicated that health concerns and attitudes toward the prevention of illness are factors which motivate consumers to purchase foods high in nutritional value. Results of this study revealed similar findings concerning shoppers motivated by health concerns. For example, grocery shoppers reported purchasing the majority of food products based on the nutritional content of the product and also planning shopping trips specifically shopping for nutritious foods. Thus, these shoppers chose to patronize grocery stores which specifically offer a wide variety of nutritious foods based on their beliefs and feelings toward their present and future state of health.

The results of this study support the findings of the Korgaonkar, Lund and Price (1985) study which revealed a

strong relationship between consumer attitude and its positive influence in determining store choice and store patronage. Results of this study support the attitude/behavior linkage as evidenced by the overwhelming agreement of the importance of the nutritional content of food when eating both in and away from the home motivating consumers patronage outlet choices.

This and other attitudes found to be significant in this study can be linked to restaurant patronage. For example, the study by Nutrition Week (1987) suggested that consumers are increasingly concerned about food, nutrition and overall health when eating away from the home. A 1986 Gallup study conducted for the National Restaurant Association reported that respondents are altering their restaurant dining habits by consuming less fat, sugar and calories in foods. Both of these findings were supported by this research. The majority of restaurant patrons reportedly chose to eat at a particular establishment based on the nutritional quality of the food offerings as a result of their concerns for such food elements as vitamins, fiber, fat and cholesterol.

A proposition not supported by this research is that of a significant consumption increase of foods such as fresh fruits and vegetables, poultry or fish based on consumers concerns toward nutrition and toward certain elements in foods. For example, a study by Seligmann and Gosnell (1984) revealed the high correlation between concerns toward the

nutritional content of foods and an increase in the purchase and consumption of foods considered to be high in nutritional value. However, the results of this research did not reveal a significant relationship between this concern and behavior. A possible reason for not finding this relationship is in the way this consumption behavior was measured. Recall that the survey measured the increase in consumption over the past year of foods which ranged from 0% (no increase in consumption) to 100% (consuming at least twice as much of the food product). Perhaps a significant relationship was not found because consumers had increased their consumption of these foods prior to the previous year, and so this increase could not be reflected in this study's measure. Future research could measure these consumption increases using more specific time frames such as intervals of years from two years up to ten years to try and identify if and when any consumption increase of nutritious foods existed thus, perhaps finding a significant relationship.

Limitations

The type of shoppers surveyed may not necessarily be representative of the true population. That is, a majority of those surveyed were found to be in an upper middle class social status as evidenced by their above average education and income levels and professional occupational status.

Therefore, the sample frame of this study may not be representative of all social classes.

Because of this demographic limitation, the results of this research may not be generalizable back to the entire population. Additional analyses examining other social classes may provide the basis from which consumers may be statistically compared with each other resulting in a more true representation of the population.

Another limitation has to do with the subject matter of the study and how those surveyed responded to the questionnaire. Respondents may have answered the questions with the positive nutritional trends of society in mind whether they follow these trends or not. That is, respondents may not have expressed their true feelings and behaviors regarding the types of foods eaten because they feared being identified as someone who does not care about foods eaten. While a response bias exists in virtually all consumer research studies, the impact of this bias presents problems for not only the results of this study, but for future implications as well. For example, results which indicate strong links between nutritional concerns and patronage behavior may lead to the development of additional retail outlets by marketers believing there exists enough demand for such nutrition based outlets. The potential for loss would be high if such biased studies emerged. Thus, perhaps a sampling procedure of a more non-probabilistic method, such as a purposive sample

surveying for example, only health food store patrons, would decrease the chance of false or misleading answers from occurring.

Implications

The study of consumers' patronage behavior should be an integral part of the marketing discipline and can produce new insights into the choice processes consumers go through when deciding where to shop. Results of this study indicate that consumers' patronage behavior of grocery stores, health food stores and restaurants are influenced by their attitudes and concerns toward nutrition and toward their health.

The findings of this study provide implications for the marketing theorist. Patronage theory can be extended to include specific areas of interest reflecting current trends such as nutrition, the physical fitness movement, demographic changes of the traditional family unit and other societal phenomenon reflecting consumer lifestyle changes and how these changes impact upon patronage behavior.

Research can be undertaken to reveal how these trends in society impact upon or create new retail choice determinants. An analysis of how these trends impact upon each other may also reveal which trends possess the most descriptive power for consumers' patronage choices.

Patronage theory also attempts to identify shopper types. For example, a study by Guiltinan and Monroe (1980)

revealed a set of six shopper types based on consumers' decisions and strategies governing grocery store shopping behavior. The results of this research may provide theorists with the basic premise to extend this study to the development of identifying different shopper typologies within the nutrition-oriented market segment for the purpose of better identifying and describing these shoppers. For example, this market segment may reveal shopping strategies based on the quality of nutritious food products offered, the variety of nutritious foods offered, the service and expertise of sales people in the outlet, or the appeal of promotions such as coupons or rebates offered by the retailer.

Managerial implications of this study include first, support for retail managers to realize opportunities which exist to meet the shopping desires of the nutrition oriented consumer. For example, a grocery store marketer may wish to advertise on the basis of the variety of healthy foods offered by his store such as a large selection of fresh fruits and vegetables, or advertise the large amount of low salt, high fiber, or cholesterol free products offered targeted at the nutrition-oriented shopper.

Results of this study pose opportunities to restaurant managers who may wish to reach this nutrition-oriented market segment by offering low calorie, low salt and fresher menu selections to its patrons. Practitioners of the restaurant industry may also capitalize on the concerns for future

health expressed by respondents in this study by advertising the manner in which meals are prepared. For example, meals may be promoted which use cholesterol free oils or selections consisting of poultry or fish rather than red meat. Future research may be done to identify specifically what strategies the restaurant patron utilizes other than their strong concerns for nutrition when selecting an eating establishment.

Further Research

Although the major premise of this research was supported, revealing the significant relationship between consumers' attitudes toward nutrition and how these attitudes affect where consumers choose to shop and dine, further research into the patronage behavior of these consumers is needed.

Additional research should be done to identify other influences on the patronage choices of nutrition oriented consumers. For example, factors including price, retail location, quality of service or freshness and variety of food products may prove to aid in revealing additional insights into the patronage behavioral intentions of these consumers.

Further research should also include a study of these nutrition oriented consumers in other regions of the country to determine if differences exist among factors of geographic location, education level, occupational status, ethnic background, purchase intentions, availability of nutritious food products, awareness of the nutritional value of foods and

past patronage habits. These future directions would seek to identify the needs of this market segment to be identified a basis for additional research into this trend strongly apparent in today's society.

Chapter Summary

This chapter has presented a discussion of the results of this research supporting the general conclusion that consumers' attitudes and concerns toward nutrition do impact upon their decision to patronize food stores and restaurants. Implications for the marketing academician and practitioner were also presented.

It is hoped that further research into this area of consumer behavior will be undertaken to determine the motivations and behavioral intentions of this market segment which proves to be growing.

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Appendix A
PATRONAGE BEHAVIOR QUESTIONNAIRE
CONSUMER STUDY OF FOOD PURCHASE BEHAVIOR

Dear Respondent,

Thank you for agreeing to complete this questionnaire. The following questions deal with your purchasing habits of food products in grocery stores, health food stores and restaurants.

The objective of this project is to gain an understanding of where people purchase food products and what types of food they select. The findings of this research will help marketers better understand and meet your preferences and desires when shopping for food.

Your house was selected at random from the Town of Blacksburg Neighborhood Statistics obtained from municipal records. All of your responses in this survey will be kept strictly confidential and all analysis will be done on groups of people, not on individuals.

Your participation in this survey will greatly help in the completion of my graduate business degree at Virginia Tech. Again, thank you for participating in this survey.

Sincerely,

Clare M. Smith
Department of Marketing
Virginia Tech
(703) 961-6949

Appendix A Continued

**CONSUMER STUDY OF
FOOD PURCHASE BEHAVIOR**

PURCHASE BEHAVIOR

The following set of questions deals with your food store and restaurant purchase behavior. Please respond to these questions to the best of your knowledge by placing your answer in the blank provided.

1. On the average, how much money do you spend on food products in a week?
_____ dollars per week

2. Out of every \$100 spent, how much is spent per week on food that is considered to be health food (brown rice, whole wheat pasta, whole grain bread)?
_____ dollars per week

3. Out of every \$100 spent, how much is spent per week on food based on its high fiber content?
_____ dollars per week

4. Where do you do the majority of your shopping for food products?
____ grocery store
____ health food store
____ convenience store
____ farmer's market
other, please specify _____

5. When you shop, out of every 10 food shopping trips, how often do you specifically shop for nutritious food products such as whole wheat bread, high fiber cereal or low-fat milk products?
_____ times out of 10

6. Please answer the following question in terms of a percentage ranging from 0% to 100%, where 0% indicates never and 100% indicates always.
How often do you shop at an additional store to purchase nutritious food products?
_____ %

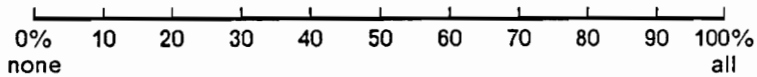
7. If you do shop at an additional store, what type of store do you go to?
____ grocery store
____ health food store
____ convenience store
____ farmer's market
other, please specify _____

8. For every ten food items you eat, how many were chosen because they make a positive nutritional contribution to your diet?
_____ items

Appendix A Continued

9. In a typical week, how many meals do you eat at a restaurant of any type?
_____ meals per week
10. How many times per week do you eat at a restaurant that offers health-oriented foods (salads, vegetable and rice entrees) on their menu?
_____ times per week

Please answer the next group of questions dealing with your purchase and consumption of food products using the following scale ranging from 0% to 100%, where 0% indicates none and 100% indicates all.



11. When you buy food items, what percentage of your selections are based on the nutritional content of the food?
_____ %
12. In general, what percentage of the food products you buy clearly state the nutritional value?
_____ %
13. What percentage of the food you eat is commonly called "healthy food" (whole grains, fresh fruits and vegetables)?
_____ %
14. What percentage of your visits to food stores are to a health food store?
_____ %
15. When you eat at a restaurant, what percentage of the food items you select are chosen based on their nutritional content?
_____ %

Appendix A Continued

ATTITUDES TOWARD NUTRITION

The following set of questions are used to measure your feelings toward nutrition. Nutrition is defined as the elements or nutrients in foods that combine to provide the "fuel" to give energy and help a person maintain a healthy body. Please answer by checking the blank which corresponds to the category that best describes your feeling about the statement.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. It is important to maintain a well-balanced diet.	1	2	3	4	5
2. The nutritional content of food is important to me.	1	2	3	4	5
3. Highly packed carbohydrate foods such as spaghetti and macaroni are nutritionally better for me than high protein foods such as beef.	1	2	3	4	5
4. Nutrition information is useful in getting the best food value.	1	2	3	4	5
5. The more nutritional information in retail food advertisements, the better.	1	2	3	4	5
6. There should be more nutritional information on products available to the consumer.	1	2	3	4	5
7. The nutritional information I find is clear and understandable.	1	2	3	4	5
8. Restaurants serve healthier foods now than five years ago.	1	2	3	4	5
9. Nutrition information should be required on menus.	1	2	3	4	5
10. Nutrition is important when I eat out.	1	2	3	4	5
11. The only way to get a well-balanced meal is to make it yourself.	1	2	3	4	5

Appendix A Continued

Please indicate your concern about the elements of food products you eat by checking the appropriate blank.

	Very Unconcerned	Unconcerned	Neutral	Concerned	Very Concerned
1. sugar	_____	_____	_____	_____	_____
2. cholesterol	_____	_____	_____	_____	_____
3. fat	_____	_____	_____	_____	_____
4. preservatives and additives	_____	_____	_____	_____	_____
5. salt	_____	_____	_____	_____	_____
6. calcium	_____	_____	_____	_____	_____
7. iron	_____	_____	_____	_____	_____
8. calories	_____	_____	_____	_____	_____
9. fiber	_____	_____	_____	_____	_____
10. vitamins	_____	_____	_____	_____	_____
11. artificial ingredients	_____	_____	_____	_____	_____

ATTITUDES TOWARD PREVENTIVE HEALTH

Please circle the response for each question which best describes your opinion.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. Making certain lifestyle changes will prevent serious diseases.	1	2	3	4	5
2. The type of food I eat can affect my future health.	1	2	3	4	5
3. I choose the types of food I eat by how good they are for my health and body.	1	2	3	4	5
4. Nutrition is important to my long term health.	1	2	3	4	5
5. What I eat now will have an effect on my future appearance.	1	2	3	4	5
6. What I eat now will have an effect on my future pep and energy.	1	2	3	4	5
7. Excess amounts of cholesterol can produce harmful effects to my body.	1	2	3	4	5
8. I feel my present diet is nutritionally satisfactory.	1	2	3	4	5

Appendix A Continued

Please answer the following questions dealing with preventive health by checking the appropriate blank.

	Very Unconcerned	Unconcerned	Neutral	Concerned	Very Concerned
9. How concerned are you about the cancer causing substances like nitrosamine found in bacon and hot dogs?	_____	_____	_____	_____	_____
10. How concerned are you about increasing your consumption of poultry, turkey and fish due to their lower fat content compared to red meat?	_____	_____	_____	_____	_____
11. How concerned are you about committing to a dietary plan that ensures you get the proper nutrition in the food you eat?	_____	_____	_____	_____	_____
12. How concerned are you about increasing your intake of high fiber foods to prevent illnesses such as colon cancer?	_____	_____	_____	_____	_____
13. How concerned are you about reducing your intake of high cholesterol foods (eggs, fried hamburger) to reduce the threat of illnesses such as heart disease?	_____	_____	_____	_____	_____
14. How concerned are you about avoiding adding salt to your food?	_____	_____	_____	_____	_____

Appendix A Continued

DEMOGRAPHICS

Finally, we would like to ask some questions about you that will help us to better understand the answers you have given. Please remember the results of this survey will remain confidential.

1. What is your gender?
 male
 female

2. What is your marital status?
 single
 married
 divorced
 widowed

3. What is your age?
 years

4. How many children do you have?
 children

5. Including yourself, how many persons are in your household?
 persons

6. What is the highest level of education that you have completed?
 less than high school
 high school graduate
 some college
 college graduate
 masters degree
 doctorate

7. In what type of dwelling do you currently live?
 rent an apartment
 rent a house
 rent a townhouse
 rent a mobile home
 own a house
 own a townhouse
 own a mobile home
other, please specify _____

8. Which one type of radio programming are you most likely to be listening?
 easy listening music
 contemporary popular music
 rock music
 country/western music
 classical music
 talk and news programming
other, please specify _____

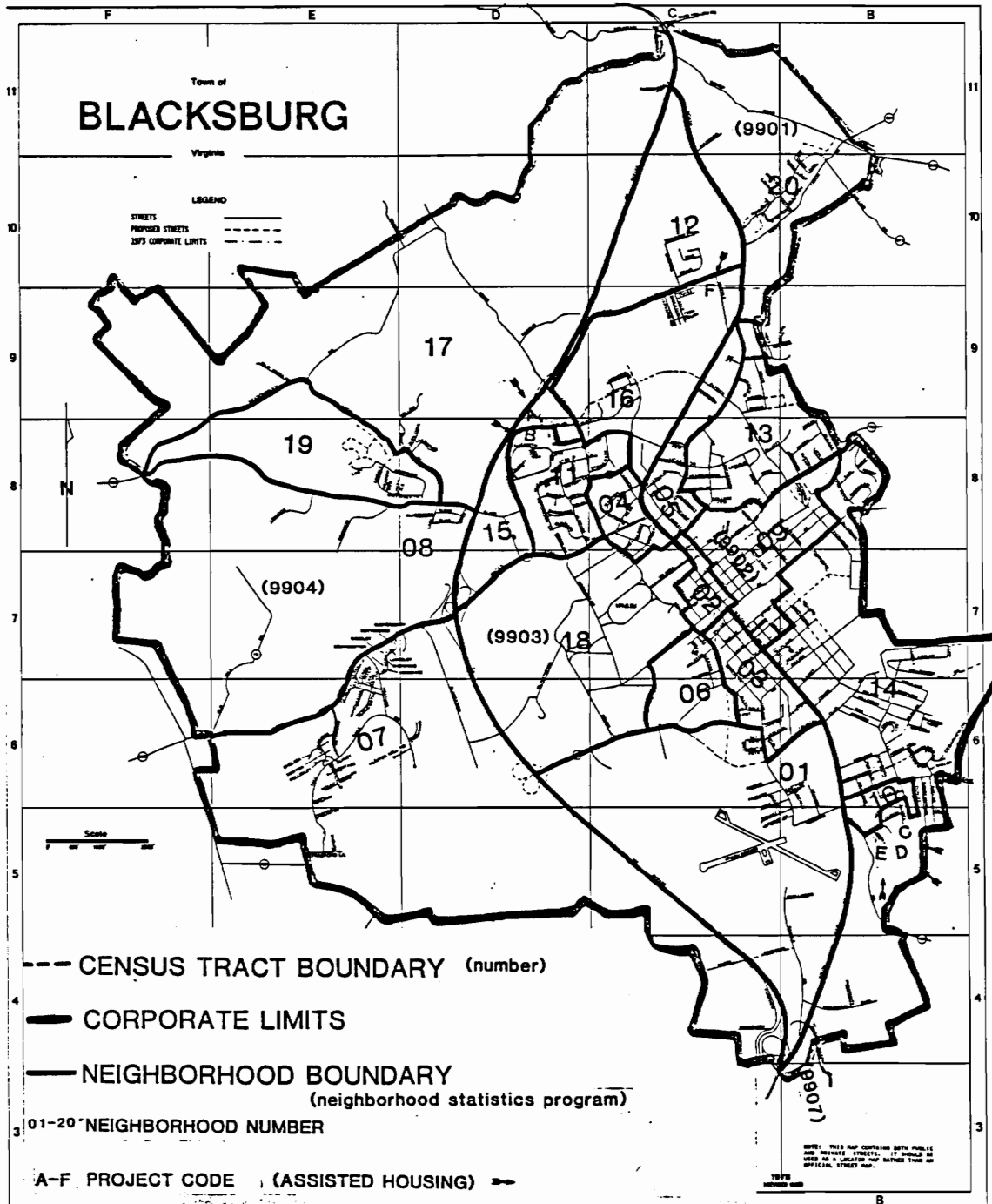
9. Which of the following local newspapers do you read? (please check all that apply)
 Roanoke Times & World News
 News Messenger
 The New River Valley Shopper
 food store circulars
other, please specify _____

10. What is your occupation? _____

11. What is the total annual income of your household before taxes?
 under \$10,000
 \$10,000 - \$19,999
 \$20,000 - \$29,999
 \$30,000 - \$39,999
 \$40,000 - \$49,999
 \$50,000 - \$59,000
 \$60,000 and over

The information you have filled out will be very useful in the completion of my study. Once again, thank you very much for your time and cooperation in completing this questionnaire.

Appendix B
 BLACKSBURG NEIGHBORHOOD DISTRICT AREAS



VITA

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EDUCATION

Master of Science, Business Administration, May 1988
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