To the Graduate Council:

I am submitting herewith a dissertation written by Angela Radford Lewis entitled "Determinant Attributes Used by the Elderly For Making Grocery Store Choices." I have examined the final paper copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Human Ecology.

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DETERMINANT ATTRIBUTES USED BY THE ELDERLY FOR MAKING GROCERY STORE CHOICES

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Degree
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Angela Armstrong Radford Lewis
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DEDICATION

This dissertation is dedicated to the memory of my first husband, Coach Ralph Stacey Radford, who always believed that receiving my doctorate was the thing that I should and could do. His undying spirit was the wind beneath my wings throughout this entire process. I thank God upon every remembrance of him.

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ABSTRACT

The purpose of this study was to examine the determinant attributes used by the rapidly increasing elderly (aged 65 and older) consumer segment when choosing among the various retailers for grocery purchases. This study also sought to examine the importance of these determinant attributes and how these determinant attributes affect grocery store patronage decisions. Finally, this study explored the impact that primary store choice, age, self-reported healthiness, activity and mobility have on the importance placed on grocery store attributes. Data were gathered via a mail questionnaire.

A determinant attribute model based on the basic multi-attribute model formed the theoretical framework for this study. This model offered a defined structure that allowed the investigation of the influence of belief strength and importance weights on consumer attitudes and decisions. A determinance score was determined for each store attribute. The higher the determinance score for the store attribute, the more the determinant the attribute was in the store patronage decision.

Data results are based on the responses of 366 elderly respondents aged 65 and older. The store attributes that were most important to elderly consumers related to the quality/price relationship and finding satisfactory products. The store attributes dealing with physical aspects were rated relatively low in importance. Eight determinant attributes were identified. Four of the most

determinant attributes related to the quality/price relationship. The elderly also sought in-store services and convenience.

It was hypothesized that differences would exist in determinant attributes based on the elderly consumer's primary store choice, age, activity level, mobility, and self-reported healthiness. Multiple Discriminant Analysis was used to provide a test of difference across these independent variables. MDA was performed on both the determinant and nondeterminant attributes. Although, all of the hypotheses were rejected, a few differences were found for the determinant attributes. *Easy to read signs/price stickers* showed the most difference across the independent variables for determinant attributes. Significant differences were found for the nondeterminant attribute *wide aisles*; but, overall, the nondeterminant attributes did not vary across the independent variables.

Recommendations for grocery retailers and marketers are provided as well as recommendations for further research.

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CHAPTER I

INTRODUCTION

The elderly population, persons 65 years or older, numbered 35 million in 2000, representing 12.4 percent of the U.S. population or about one in every eight Americans (Greenberg, 2002). Growth of this population segment slowed somewhat during the 1990's because of the relatively small number of babies born during the Great Depression of the 1930's. But the elderly population will increase between the years 2010 and 2030 when the "baby boom" generation reaches age 65. By 2030, there will be approximately 70 million elderly persons, representing about 22 percent of the U.S. population or one in every five Americans (Johnson, 1995).

Duncker and Greenberg (2000) reported that the elderly population is getting older. In 1999 the 65 to 74 age group (18.2 million) was eight times larger than in 1900, but the 75 to 84 group (12.1 million) was 16 times larger and the 85+ group (4.2 million) was 34 times larger. In 2000, persons reaching age 65 had an average life expectancy of an additional 19.2 years for females and 16.3 years for males (Greenberg, 2002).

The median income of elderly persons in 2001 was $19,688 for males and $11,313 for females (Greenberg, 2002). Analyses of food spending patterns in 1997 revealed that households with heads aged 65 –74 spent $41.44 per capita weekly on food, more than the $36.21 spent by households with heads aged 75 and older, but less than households with 45 – 64 year-old heads. Nearly 73

percent of weekly food expenditures for the oldest group (age 75 and older) was spent on at-home food. Both elderly groups spent between eight and ten percent of their weekly income on food compared with an average of five percent for all households (Harris & Blisard, 2002).

According to Kaufman (1998), the marketing environment for retail food sales has changed tremendously in the past two decades. Traditional grocery stores, such as supermarkets, smaller full-line foodstores, and convenience stores, are increasingly competing with nontraditional retail outlets that offer many food and nonfood products typically found in grocery stores. As grocery retailers have expanded their nonfood offerings to include floral items, pet supplies, prescription drugs, and video rentals and sales, for example, they have encountered increasing competition from a wide range of retail outlet types, including drugstores, mass-merchandise stores, and warehouse club stores. Food sales by nontraditional retailers amounted to $64.9 billion in 1998 compared with sales of $37.7 billion in 1992, a 72 percent increase. Over the same period, food sales by traditional retailers grew 15 percent to $308.8 billion. As a result, the share of total retail food sales accounted for by traditional foodstores declined from 87.7 percent to 82.6 percent during 1992-1997.

The traditional supermarket design is being supplemented by warehouse stores, supercenters, and combination stores (Binkley & Connor, 1998). According to the ACNielsen Study (2002), consumers are shopping less frequently in traditional grocery stores, while they are increasing their trips to supercenters like Wal-Mart and dollar stores. Supercenters and dollar stores are

showing gains both in the percentage of households who shop in these channels and in the number of trips consumers make to them each year. However, when the supercenter channel is excluded, grocery stores generated 40 percent of all outlet revenue in 2001; thus grocery stores are still a viable retail channel.

Statement of the Problem

In the next decade and beyond, significant demographic changes in the elderly population will offer new challenges for the U.S. food industry. Traditional grocery stores, such as supermarkets, smaller full-line foodstores, and convenience stores, will continue to compete with other nontraditional retail outlets that offer many food and nonfood products typically found in grocery stores. The traditional supermarket design will continue to be supplemented by warehouse stores, supercenters, and combination stores (Binkley & Connor, 1998).

Previous supermarket patronage research indicates that consumers typically shop at a single store for the majority of their groceries (Food Marketing Institute, 1990; Urbany, Dickson, & Key, 1991;). However, according to Stassen, Mittelstaedt, and Mittelstaedt (1999), some consumers may find their needs satisfied by a single retailer, but the majority of consumers divide their patronage among multiple retailers who, in combination, can satisfy their needs. The outcome is that stores share customers or their customers "overlap." Overlapping often occurs in U. S. grocery retailing where research consistently shows that the overwhelming majority of consumers shop in more than one store.

Overlap is the norm and store loyalty is the exception. Results from scanner data show that most shoppers spend the majority of their food dollars (70%) at one store over a 1-week period, but only about one in five shoppers spend 70% of their dollars at the same supermarket over a 6-month period. Thus, most shoppers exhibit some amount of food store loyalty in the very short term, but many shoppers change their primary store choice once or more each year (Woodside & Trappey, 2001).

Based on these changes, both in the elderly population and the marketing environment for retail food sales, and previous supermarket patronage research, research of particular importance to this dissertation was the identification of store characteristics and services elderly consumers seek when making grocery purchases and how these characteristics and services impact elderly consumers' grocery store patronage decisions.

Purpose of the Study

Several studies have explored elderly consumer patronage behavior. Chowdhary (1989); Hogee, Baer, and Kang-Park (1988); and Lumpkin, Greenberg, and Goldstrucker (1985) identified store attributes, preferences, and shopping behaviors employed by the elderly when buying apparel. Mertz and Stephens (1986) examined the shopping and buying habits of the elderly. Tongren (1988) examined the determinant behavior characteristics of the older consumer. However, little attention has been directed to identifying the store attributes that elderly consumers seek in retail outlets when making grocery

purchases and the relative importance of these store attributes and their impact on store patronage decisions. Furthermore, much of the previous research reported on elderly consumers' patronage behavior is based on data collected in the 1980's; thus, creating questions of relevancy after a period of over twenty years.

The focus of this research was to examine the determinant attributes used by the rapidly increasing elderly consumer segment when choosing among the various retailers for grocery purchases. This study also sought to examine the importance of these determinant attributes and how these determinant attributes affect grocery store patronage decisions. Finally, this study explored the impact that primary store choice, age, self-reported healthiness, activity, and mobility have on the importance placed on grocery store attributes.

Theoretical Framework

Sheth and Talarzyk (1972) used Rosenberg's two-factor theory to investigate whether value importance or perceived instrumentality is more dominant in determining affect (attitude) toward a brand. The authors translated Rosenberg's theory to state that attitude toward a brand is a function of: (1) a buyer's beliefs about the brand's ability (perceived instrumentality) to satisfy or block consumption and usage motives and (2) the relative importance of these motives (value importance) to the buyer. The results indicate that perceived instrumentality contributes more toward determining affect than does value importance. The authors concluded that the salience of various characteristics of

a product class should be useful discriminators in determining attitudes toward various brands.

Payne (1982) explained that when decision makers are faced with simple choices between two alternatives, they often use what are known as "compensatory strategies." Plous (1993, p.102) defined compensatory strategy as "trading off low values on one dimension against high values on another." One strategy is to use a "linear model." In a linear model, each dimension is weighted according to its importance, and the weighted values are summed to form an overall index of value.

Woodside and Trappey (1992) examined the hypothesis that the most accessible attitudes that associate a given store with evaluative store attributes are highly predictive of primary store choice. The identification of a particular store as a customer's primary store was associated positively with accessing the same store from memory for positive determinant attributes. The authors found that a consumer's top-of-mind brand or store name associations with a few bits of information are strongly related to his or her shopping and buying behavior. Such information bits are likely to be a brand's or store's "determinant attributes" (Alpert, 1971). Results of the study show that customers can quickly name a brand or a store when asked what brand (or store) first come-to-mind for specific bits of information, and that these top-of-mind brand (or store) name responses are associated strongly with customers' primary brand or store choices. When shopping, a customer is likely to refer to a limited number of evaluative attributes

and select the brand or store automatically associated with these evaluative attributes.

According to Heath, Ryu, Chatterjee, McCarthy, Mothersbaugh, Milberg, et al. (2000), one of the most basic principles of decision theory is that people choose by weighting attributes according to their relative importance and then selecting the alternative with the largest weighted composite. The basic multi-attribute model forms the theoretical framework for this research because it offers a defined structure that allows the investigation of the influence of belief strength and importance weights on consumer attitudes and decisions. According to Wilkie (1994, p. 287), "a multi-attribute model views an attitude object (brand, store, etc.) as possessing *many attributes* (characteristics) that provide the basis on which consumers' attitudes will depend. Thus the attitude a consumer has toward a brand, store, etc, will depend on the beliefs that a consumer holds about what the brand, store, etc. has to offer. Each belief pertains to one attribute, thus leading to the designation as a multi-attribute model." The multiplicative relations between importance and beliefs, the summation over all attributes, and the nature of the ratings all suggest that the basic multi-attribute model is a *linear compensatory attitude model*.

A multi-attribute object is viewed as a bundle of attributes leading to costs and benefits of differential desirability to individuals or segments of the market. Overall affect is posited to reflect the net resolution of an individual's cognitions (beliefs) as to the degree to which given objects possess certain attributes weighted by the salience (importance) of each attribute to the individual. The

basic purpose of the multi-attribute model is to gain an understanding of purchase predisposition. The multi-attribute model yields attitude scores that are significantly related to measures of purchase or purchase predisposition (Wilkie & Pessemier, 1973).

Significance of the Study

Information from this study will help retailers and marketers respond to the changing wants and needs of the elderly consumer and the competitive grocery retail environment. This study will provide a better understanding of elderly consumer choice among competing grocery retail formats in a metropolitan setting. The significance of this study will be to provide updated information relative to the store patronage decisions of the rapidly increasing elderly population, particularly in the area of grocery purchases and how store attributes influence store patronage decisions. It will also provide a base for further research that will help marketers and retailers understand why the elderly choose a particular retail format for grocery purchases. The findings of the study will have important implications for the design of grocery retail formats and the services that are provided to accommodate the elderly consumer. This study will also extend the use of the determinance model used by Lumpkin, et al. (1985) beyond the realms of apparel purchases. Finally, this study will expand the consumer behavior literature of consumers age 65 and older.

Delimitations and Limitations of the Study

Due to cost and time factors, the study will be limited to those aged 65 and older who frequent a senior center. Data will only be collected from the nine states that were identified in the 2000 U. S. Census as having the largest population of elderly citizens. Data will only be collected once. All possible variables will not be included in the study.

Scope of the Research

The researcher identified the scope of the research in the following ways:

1. The importance of store services and characteristics when the elderly make grocery purchases; determinant attributes (Alpert, 1971) that affect grocery store patronage decisions as identified by the elderly consumer; and the impact of primary store choice, age, health, activity, and mobility on the determinant attributes were examined.

2. Study subjects were elderly consumers located in nine metropolitan cities who frequented senior citizen centers. The elderly consumers were a convenience sample of those who volunteered to participate in data collection while visiting the local senior citizen center.

3. Store attributes were limited to the following: in-store services and convenience, physical environment, quality and price characteristics based on previous research (Lumpkin, et al.) and findings from the pilot study.

4. Elderly consumer demographics included gender, age, primary store choice, activity level, self-reported healthiness, and mobility (mode of transportation).

5. A self-administered questionnaire was used to collect the data.

Assumptions

The underlying assumptions of the research included the following:

1. Relationships exist among the variables of the study and are measurable.

2. The literature supporting the rationale for the study accurately reflects the need for the research.

3. Members of the sample population were willing to participate in the study.

4. The self-administered questionnaire is a meaningful method for gathering the range of data needed to answer the research hypotheses.

Definition of Terms

The following terms and definitions are presented for clarification of the text in this research.

Elderly consumer – Any U.S. citizen aged 65 or older (Assael, 1985; Lambert, 1979; Tongren, 1988; Yax, 2000)

Attributes – Characteristics of the store and its products and services (Dunne, Lusch, & Griffith, 2002)

Determinant attitudes – Attitudes toward product or service features which are most closely related to preference or to actual purchase decisions (Myers & Alpert, 1968)

Determinant attributes – Attributes projected by the product's image which lead to the choice of that product (Alpert, 1971)

Multi-attribute Attitude Model – A model of customer decision making based on the notion that customers see a retailer or a product as a collection of attributes or characteristics (Levy & Weitz, 2001)

Multi-attribute Attitude Models – Models designed to predict consumers' attitudes toward objects (such as brands) or behaviors (such as buying a brand) based on their belief about and evaluation of associated attributes or expected consequences (Peter & Olson, 1999)

Multiple-attribute Method – A method for evaluating a retailer, product, or vendor that uses a weighted average score based on the importance of various issues and the performance on those issues (Levy & Weitz, 2001)

Combination store – Food-based retailer between 30,000 and 100,000 square feet in size with over 25 percent of its sales from nonfood merchandise such as flowers, health and beauty aids, kitchen utensils, photo developing, prescription drugs, and videotape rentals [Ex: Albertsons, Dominicks, Farmer Jack, Jewel-Osco, Kroger, Meijer, Publix, Ralph's and Winn-Dixie] (Levy & Weitz, 2001)

Conventional supermarket – A self-service food store that offers groceries, meat, and produce with limited sales of nonfood items, such as health

and beauty aids and general merchandise [Ex: A&P, Pioneer, Safeway, and Western Supermarket] (Levy & Weitz, 2001)

Discount store – A general merchandise retailer that offers a wide variety of merchandise, limited service, and low prices [Ex: Dollar General and Family Dollar] (Levy & Weitz, 2001)

Supercenter – A retail format combining a superstore (a large supermarket) and a full-line discount store in stores ranging from 150,000 to 200,000 square feet [Ex: K-Mart, Pathmark, Target, and Wal-Mart] (Levy & Weitz, 2001)

Warehouse club – A retailer that offers a limited assortment of food and general merchandise with little service and low prices to ultimate customers and small businesses [Ex: Costco and Sam's Club] (Levy & Weitz, 2001)

Warehouse store – A discount food retailer that offers merchandise in a no-frills environment [Ex: Aldi and Save-a-Lot] (Levy & Weitz, 2001)

Primary store – The store named by a consumer, when asked, "Please name the supermarket where you shop most often for groceries." (Woodside & Trappey, 2001)

CHAPTER II

REVIEW OF LITERATURE

The purpose of this dissertation was to examine the determinant attributes used by the rapidly increasing elderly consumer segment when choosing among the various retailers for grocery purchases. This study also sought to examine the importance of these determinant attributes and how these determinant attributes affect grocery store patronage decisions. Finally, this study explored the impact that primary store choice, age, self-reported healthiness, activity, and mobility have on the importance placed on grocery store attributes. In this chapter, the theoretical basis for this dissertation is explored, and support for this research is provided through discussion of studies and research pertinent to the constructs of interest. This chapter also provides justification for the hypotheses that guide this study and the use of the determinance model to measure grocery store determinant attributes. A review of the elderly consumer literature provided a framework for this study.

The Elderly

The elderly is a commonly used label for persons 65 years old and older (Lambert, 1979; Tongren, 1988; Yax, 2000). The conventional segmentation that has evolved has been of three groups, with some rough age bands, namely: the 'Young Old' (age 55 – 64), the 'Mature Old' (age 65 – 74), and the 'Old Old' (age 75+) (Long, 1998). Dychtwald (1997) segmented the 50-plus market into three

chronological groups: 50-64 (middle adulthood), 65-79 (late adulthood), and 80-plus (old). The consensus view in the literature is that the elderly sector of the population is not a homogeneous group and more sophisticated bases or segmentation are required (Burt & Gabbott, 1995).

According to Kelly (1992) the American Association of Retired Persons (AARP) reported that the elderly consumer is more likely to complain, to need special attention, and to take time browsing before making a purchase; and that the elderly do not like changes, compared to other age groups. Elderly shoppers are typically loyal and willing to spend, but are extremely quality-conscious and demand hassle-free shopping. Convenient locations are a major consideration for the elderly (Levy & Weitz, 2001).

Shopping Behaviors of the Elderly

An increased interest in studying the elderly consumer has developed due to the recent focus on the growth of the aging population. Over the past two decades, numerous researchers have studied various aspects of elderly consumer patronage behavior that include shopping orientation, pharmacy patronage, determinant attributes, clothing preferences, apparel shopping, food store preferences, marketing to the older consumer, food expenditures; and gerontographics (Chowdhary, 1989; Hama & Chern, 1988; Hogge, et al. 1988; Lumpkin, 1984, 1985; Lumpkin, et al.; Mertz & Stephens, 1986; Moschis, 1993; Shannon, Cromley & Fink, 1985; Tantiwong & Wilton, 1985).

Mason and Smith (1974) conducted an exploratory analysis to develop a comprehensive shopping behavior profile of the low-income senior citizen. According to the research, the senior citizen shopper apparently relied only to a limited extent on in-home shopping services in making purchases. The primary sources of product information utilized were personal observation in terms of physical search and the newspaper. Most shopping was likely to be in the morning hours. Most food purchases were from a chain supermarket. Clothing and household furnishing purchases were primarily made in the central business district. The typical respondent appeared to be remarkably mobile and well-informed in spite of a high average age. Shopping seemed to be a major part of the life-style of the respondents and perhaps more a source of pleasure than a necessary utilitarian chore.

Tongren (1988) analyzed 67 papers that represented all marketing and consumer behavior literature published about older consumers since 1958. Five determinant behavior patterns emerged from the analysis: (1) Elderly consumers, as a group, are active shoppers; 2) Elderly males and females are significantly more likely than younger consumers to shop together and to make joint buying decisions for everything from everyday convenience goods to expensive hard goods; 3) Whether or not the elderly get market information through processes and sources different from younger consumers had not been clearly established; 4) Within the elderly consumer segment, logical sub-segmentations would be employed-retired; and 5) Elderly consumers do not like

to be reminded they are old, and they react unfavorably to direct advertising approaches.

The Elderly and Food Shopping

According to Mason and Bearden (1978) elderly shoppers are alert, cost-conscious, and rarely find shopping to be unduly burdensome. Rather, for many older persons, shopping appears to be a source of pleasure and recreation. In reference to food shopping behavior and experiences, almost ninety percent of the elderly respondents reported purchasing food at least once a week. Over half of the sample had no preference for time of day when shopping, but those who did have a preference, preferred to shop in early or late morning when crowds were likely to be less of a problem. Approximately thirteen percent of the sample reported eligibility for food stamps; however, only six percent reported use of the food stamps. The elderly consumer was found to be a much less frequent user of coupons than the population as a whole. Heavy use of impersonal media was used to acquire new food product information. Fifty-nine percent of the shoppers purchased store brands at least every third shopping trip with the primary reason being that the store brands were lower priced.

Mason and Bearden (1979) analyzed the shopping behavior problems of elderly consumers when purchasing food. Fifty percent of the respondents reported dissatisfaction with one or more food items purchased in the preceding twelve months. Reading product and package labels because of small print and package sizes that were too large for older households were also reported as

problems. The elderly shoppers also reported the following store environment problems that led to dissatisfaction when purchasing food items: supermarkets were typically too cold for older people; handling shopping carts was a problem; having to bag their own groceries and carry them to their automobiles also presented difficulties. Sixty-nine percent of the respondents indicated that the elderly needed a place to sit and rest when shopping in the grocery store.

Smith (1991) examined spatial aspects of the grocery shopping behaviors of the ambulatory urban elderly. The author found that the elderly's grocery shopping was mainly confined to the home neighborhood regardless of the types of outlets available locally. As part of an elderly individual's broader activity space, grocery shopping was frequently linked to other types of repetitive travel purposes, particularly trips to pharmacies, financial institutions, and social destinations. In comparing the grocery shopping patterns of the young-old and old-old, there were no significant differences in shopping behavior. However, Bawa and Ghosh (1999) found that households headed by individuals 55 and over tend to make more frequent trips to the grocery store.

Needs and Wants of the Elderly

In an earlier study by Lambert (1979), the concerns, needs, and problems that were salient in the minds of older consumers were identified. The author posed open-ended questions to individuals in two age groups, 55 to 64 and 65 and older, asking them about actions retailers might take to better serve older consumers. Content analysis was utilized to examine the replies. Approximately

59.4 percent of the 55- to 64- year-old respondents and 53 percent of those 65 and older called for senior citizen discounts and a desire for these discounts to be applied to a wider variety of products and services. In addition, a number of respondents wanted discounts increased above the customary 10 percent.

Approximately 19.8 percent of the 55- to 64-age group and 25 percent of those 65 and older, wanted store personnel to treat older consumers with more courtesy, dignity, and patience. A desire for greater assistance in locating products within stores was expressed by nearly 18.9 percent of respondents aged 55 to 64 and 18.1 percent of those 65 and older. The responses centered on assistance by store personnel, more complete and readable store directories, and grouping of products. A need for transportation to and from stores and shopping malls was mentioned specifically by 11.3 percent in the 55- to 64 group and 12.9 percent in the 65 and older group. About 20.8 percent of respondents aged 55 to 64 and 22.4 percent of those 65 and older wanted retailers to provide delivery service.

Approximately 9.4 percent of 55-to 64-year-old respondents and 10.3 percent aged 65 and older cited problems in reading price information because the numbers were frequently small or blurred. Discomfort and fatigue from having to stand in long, slow-moving checkout lines, perhaps after becoming tired from shopping, were cited by about 10.4 percent of the 55- to 64-year-olds and 6.5 percent of the 65-and-older respondents. They asked that faster checkout services be provided for older consumers. About 9.4 percent in the 55- to 64-age group and 8.2 percent in the older group mentioned a need for smaller

packages of perishable products. Nearly 6.6 percent of respondents 55 to 64 and 7.8 percent of those 65 and older asked that chairs or benches be placed here and there in large establishments so that older shoppers can rest when they become tired. About 2.8 percent of respondents 55 to 64 and 5.2 percent of those 65 and older wanted store personnel to furnish detailed product information in response to consumer questions, to offer advice on the best purchase alternatives for the customer's needs, and when requested, to help older shoppers remove hard-to-reach items from displays and shelves. About 5.7 percent of respondents in the first age category and 2.6 percent in the second asked that some parking spaces near mall or store entrances be reserved for older consumers. About 3.8 percent of respondents in the 55-to-64 age category and 3 percent in the 65 and older group specifically requested carryout service.

From one to three percent of the respondents (1) indicated they would like stores to designate certain hours for elderly consumers, (2) expressed concern about store aisles containing boxes or other obstructions that might cause tripping, (3) said restrooms should be more accessible, and (4) suggested that large stores and shopping malls furnish walkers and wheelchairs just as they provide baby strollers. The most frequently mentioned benefits of designated store hours for the elderly were (1) avoiding large crowds, (2) receiving greater assistance from store personnel, and (3) avoiding the impatience of some younger shoppers.

Store Shopping Experiences

Kerin, Jain, and Howard (1992) examined the relationship between supermarket shopping experience, merchandise quality and price perceptions, and perceived value. Store shopping experience is a function of store atmosphere and customer-related service practices and policies, which are all indicators of a single construct in the minds of consumers. Respondents were asked to rate the performance of their most frequently patronized supermarket on eleven supermarket characteristics and to rate this supermarket on overall value for the money. Perceived store shopping experience was observed to have a direct causal influence on consumers' perceived value. Specifically, the relationship was positive—"good" ratings on the indicators of store shopping experience were related to perceptions of "good value." Perceived store shopping experience was found to have a positive causal influence on merchandise quality perceptions, which in turn had a positive causal influence on consumers' perceived value. A perceived "good" store shopping experience produced "good" merchandise quality perceptions which resulted in "good" value perceptions. A "good" store shopping experience created favorable (good) merchandise price perceptions and ultimately good store value perceptions. Finally, merchandise price perceptions have a causal influence on merchandise quality perceptions. Good merchandise price perceptions were linked with good merchandise quality perceptions by study participants.

Hare, Kirk, and Lang (2001) sought to identify the factors influencing the experience of food shopping and to gain insight into the quality of that

experience. These objectives were met by conducting personal interviews, using critical incident technique (CIT) as a framework for the interview, with volunteers aged 65 years plus from a variety of social settings in Scotland. This allowed consumers to recall, through their stories, the factors that contributed to a positive and negative food shopping experience and why they perceived it to be so.

Respondents were asked about both positive and negative experiences of their food shopping trip, which was defined as being any aspect perceived by them to be related to their food shopping and to have made it a good or bad experience for them. During questioning, respondents were asked to recall the factor(s), element(s) or service encounter(s) in their shopping trip that they felt were good and bad, and then describe the positive or negative experience with that factor, element or encounter through prompt questions such as: "What happened?"; "Why was it good/bad?"; and "How could it have been better?".

The three categories with the largest number of incidents and that contributed to the quality of the shopping experience were merchandise related, retail practices and staff issues, accounting for more than two-thirds of all the incidents. Both positive and negative incidents were experienced in all primary categories with the exception of "social aspects". Price was perceived to be problematic. Prices were felt to be too high and price comparison was difficult due to some locations having only a few retailers or consumers having limited resources needed to visit a variety of stores. Access was a relatively small category with neither of the sub-categories containing incidents on problems

specifically related to superstores located out-of-town. Rather, access issues pertained to levels of informal support and the transport service. In terms of location, some specific difficulties were identified for rural populations, but accessibility and food availability problems were experienced as much in urban as rural areas. Problems with meeting the shopping needs of the elderly were also identified which included quantities that were too large, design issues, and service features. Socially, respondents felt that food shopping was enjoyable and staff were generally seen to be performing well.

Determinant Attributes

James, Durand, and Dreves (1976) used a multi-attribute model to examine the store image of men's clothing stores in a small midwestern college town. The model, rather than treating attitude as a multidimensional concept, viewed attitude as a unidimensional construct of effect. Thus an attitude held is a function of (1) the strength of beliefs about an object and (2) an evaluation of these beliefs. The model assumed that only those beliefs that are salient toward particular stores are included. The study was designed to test the predictive ability of the multi-attribute attitude model.

The conclusion reached on the basis of this study was that the multi-attribute attitude model is a powerful technique for the description and prediction of store image with definite advantages over the semantic differential. The authors also concluded that through the identification of salient attributes, a quantification of the importance of these attributes as indicated by target

consumers and the evaluation of stores on these attributes, a retailer can better understand his target market. Not only can a retailer tell how his image compares to other retailers on overall measures, and on various attributes, but he can also tell how important are the various attributes on which he has been ranked.

Arnold, Oum, and Tigert (1983) studied six North American and European food markets to identify and compare determinants of retail patronage based on seasonal, temporal, regional, and international aspects. The authors used the multinomial logit (MLN) model of choice behavior (Gensch & Recker, 1979; Punj & Straelin, 1978) based on the conceptual development of the meaning of attribute determinacy by Alpert (1971, 1980) and Myers and Alpert (1968). Extensive analyses across the six markets and across time identified a small set of consistently significant food store parameters that are the key determinants of patronage. Location, price, assortment, fast checkout, friendly and courteous service, meat, weekly specials and pleasant shopping environment were critical determinants of patronage. Differences in the relative rankings of these determinants suggest that markets are affected by differences in market structure, competitive strategies, and the state of consumer preferences. Locational convenience and low prices were the top-ranked determinant attributes across most markets and cultures.

Blakney and Sekely (1994) examined the importance of determinance value of attributes regarding shopping mode choice using the theoretical framework of Sheth's patronage disposition theory. Specifically, the study

examined the four shopping segments described below to identify attributes or shopping motives that are determinant in their shopping mode decisions. The authors defined four segments based on outshopping (shopping out of town) and in-home shopping (shopping at home through mail, telephone, or computer) behavior. The outshopper significantly participates in outshopping, but not in-home shopping. The outshopper spends 15% or more of total annual expenditures out of town, but less than 5% through in-home methods. The in-home shopper significantly participates in in-home shopping, but not outshopping. The in-home shopper spends less than 15% of total annual expenditures out of town, but 5% or more through in-home methods. The supplement shopper significantly participates in both outshopping and in-home shopping. The supplement shopper spends 15% or more of total annual expenditures out of town and 5% or more through in-home methods. The local shopper does not significantly participate in either outshopping or in-home shopping and therefore does not fit the definition of an outshopper or an in-home shopper. The local shopper spends less than 15% of total annual expenditures out of town and less than 5% through in-home methods.

The authors examined whether differences existed among the four groups based on determinance values for the following attributes: price, merchandise selection, merchandise quality, service selection, service quality, convenience, salesperson quality, entertainment/enjoyment, and perceived risk. To measure determinance values, respondents were asked three questions regarding each attribute: (1) the importance of the attribute with regard to their shopping

decisions (I); (2) if the shopping mode they choose most often has that attribute (R); and (3) if shopping modes in general have that attribute (G). Five point scales were used for all three questions. Then responses from these questions were used in the following formula to calculate determinance values:

D = I(R-G) + C where:

D = Determinance value for the attribute

I = Relative importance for the attribute

R = Belief as to the extent to which the preferred shopping mode possesses the attribute

G = Belief as to the extent to which shopping modes in general possess the attribute

C = A constant added to the formula to avoid problems with negative determinance values (in this instance, the constant was 5, because a five point scale for each question was used).

This method for measuring determinance value for an attribute was based on suggestions by Lumpkin, et al.; Myers and Alpert (1968); and Sheth and Talarzyk (1972). Determinance scores for convenience, price, quality of service, and selection of services were found to be important in discriminating among the groups.

Sirohi, McLaughlin, and Wittink (1998) examined the links between and the effects of various antecedents of current customers' store loyalty intentions in the supermarket channel. The authors considered three store loyalty intentions: customers' intent to continue purchasing; their intent to increase future

purchases; and their intent to recommend the store to others. The results were that service quality is by far the most critical determinant of merchandise quality perception. Service quality includes store operations such as store hours, training and staffing of employees; store appearance such as physical appearance and facility operation; and personnel service provided by department managers, clerks, cashiers, baggers, etc. Merchandise quality is the overall quality perceptions of merchandise and variety in brands and categories. It was also found that store loyalty intentions depend on service quality and merchandise quality perception. Perceived value, which is value for money at a competitor, does play an important role in the determination of store loyalty intention if there is a high degree of competitor attractiveness.

Van Kenhove, De Wulf, and Van Waterschoot (1999) surveyed visitors of Do-It-Yourself (DYI) stores in Belgium to investigate the impact of task definition on store-attribute saliences and store choice. The study investigated the relationship between five different task definitions (urgent purchase, large quantities, difficult job, regular purchase, and/or get ideas) and store choice/store-attribute saliences. The results show that the task definition has a significant impact on both store choice and store-attribute saliences. The importance, which is given to the attributes of a store, differs significantly across task definition. Moreover, depending on the task definition at hand, certain stores were visited more or less frequently.

From this background, this study attempts to answer the following research questions:

1. What store attributes do elderly consumers seek when making grocery purchases and how do these attributes affect *primary* store choice?
2. Are these determinant attributes the same for all elderly (age 65 and older) or do the determinant attributes vary among age sub-groups (age 65-74 and age 75 and older)?
3. Are these determinant attributes the same for all elderly (age 65 and older) or do the determinant attributes vary based on the level of elderly activity?
4. Are these determinant attributes the same for all elderly (age 65 and older) or do the determinant attributes vary based on mobility?
5. Are these determinant attributes the same for all elderly (age 65 and older) or do the determinant attributes vary based on the level of self-reported healthiness?

Elderly Expenditure Patterns

Rubin and Nieswiadomy (1994) analyzed the discretionary spending decision making and compared the propensity to consume of the retired and nonretired. All three retired groups spent a significantly greater share of their total expenditures than the nonretired groups, on food, food at home, utilities, and health care, but spent a smaller share on food away from home and entertainment. Moehrle (1990) found that nonworking elderly households spend more on food prepared at home than do working elderly households, regardless of income level.

Cook and Setterstein (1995) used data from the 1984-85 Consumer Expenditure Survey based on age group and income level to examine specific expenditures in three major domains: (1) giving; (2) recreation; and (3) essentials. "Essentials" are clothing and apparel, food, housing, health care, and transportation. Food includes both food prepared at home and food consumed away from home, including nonalcoholic and alcoholic beverages. Together, the essentials category accounted for over 90 percent of all expenditures. All groups, regardless of age or income, devoted an average of more than three-fourths of their expenditures to essentials. Regardless of age and income-to-needs ratio, all households spent the largest proportion of their overall expenditures on housing and the next largest on food.

Koelln, Rubin, and Picard (1995) compared expenditures on necessities by older Americans for different income categories. The U.S. Bureau of Labor Statistics Consumer Expenditure Survey interview tapes for 1989-90 was the data source. The authors analyzed the patterns of expenditures on necessities (food, housing, and medical care) by elderly households. Poor elderly households were found to spend three-fourths of total expenditures on housing, food, and health care.

Abdel-Ghany and Sharpe (1997) examined the spending pattern of 2,810 elderly households drawn from the Bureau of Labor Statistics 1990 Consumer Expenditure Survey. Spending pattern differences between households with a reference person aged 65 – 74 (young-old) and households with a reference person aged 75 and older (old-old) were analyzed. The two age groups differed

significantly in their spending on all consumption categories except cash contributions, reading materials and education, and miscellaneous. Significant differences in spending patterns between young-old and old-old households were found for ten expenditure categories after controlling for economic and sociodemographic differences. Significant differences in spending were found for expenditures on food at home, food away from home, alcohol and tobacco, housing, apparel and apparel services, transportation, healthcare, entertainment, personal care, and personal insurance. Comparison of results for the two age categories revealed higher marginal propensities to spend among the young-old for food at home, food away from home, alcohol and tobacco, transportation, entertainment, and personal insurance; while lower marginal propensities to spend were found for housing, apparel and apparel services, healthcare, and personal care.

Paulin (2000) studied data from the 1984 to 1997 Consumer Expenditure Surveys to compare the expenditure trends of two groups in the elderly population (aged 65 to 74 and aged 75 and older) and designed experiments to test whether tastes and preferences differ over time for elderly consumers. Elderly consumers accounted for an increased share of total expenditures. Although elderly consumers spent different amounts than younger consumers (aged 65 or younger), the trends for the groups were generally similar. Underlying tastes and preferences for the different members of the age groups had not changed substantially from 1984 to 1997.

Analyses of food spending patterns in 1997 revealed that households headed by persons age 65 – 74 spent $41.44 per capita weekly on food, more than the $36.21 spent by households headed by persons age 75 and older, but less than households headed by persons age 45 – 64 year-old. Nearly 73 percent of weekly food expenditures by the oldest group (age 75 and older) was spent on at-home food. Both elderly groups spent between eight and ten percent of their weekly income on food compared with an average of five percent for all households (Harris & Blisard, 2002).

Store Attributes

Store attributes are considered the "means" by which a consumer is able to achieve a desired "end," such as a favorable consequence or personal value satisfaction (Kerin et al., 1992). The following research gives merit to the effects of store attributes and characteristics on store patronage decisions. Bellinger, Robertson, and Greenberg (1977) investigated the relative importance of various patronage motives for shopping centers as they relate to demographic and life-style variables of shoppers. The findings suggested that two shopper types might be accurately labeled as: (1) the convenience (economic) shopper and (2) the recreational shopper. These two types or segments of shoppers were identified based on the relative importance of patronage factors. The study found that these shopper types have strongly differing desires in a shopping center.

Recreational shoppers wanted a high-quality shopping center with extensive variety and a large number of related services. Convenience and

economic issues are not the primary concern for this shopper segment. The convenience (economic) shopper is very convenient and cost-oriented. This economic orientation is expressed both in the desire for convenience (to lower the "cost" of getting to the center) and for lower prices. Shopping center quality, variety, and related services are secondary considerations to perceived convenience and other economic advantages of the shopping center.

Bearden (1977) used determinant attribute analysis to assess which department store features are the most significant in their influence on consumer patronage decisions concerning whether to shop downtown or frequent outlying shopping center department stores. Results indicated that store atmosphere, location, parking, and friendliness of salespeople are critical aspects of department stores that affect downtown patronage decisions. This study provided further support for the use of determinant attribute analysis in a wide variety of marketing and retailing situations where the objective is to ascertain the critical factors underlying consumer decision making.

Schiffman, Dash, and Dillon (1977) examined the relationship between store image characteristics and *actual* product-store choice, where all respondents were known to be recent purchasers of a specific product category from one of two competing different types of retail establishments. The purpose of the study was to add some important elements of control and realism to the task of identifying the determinant image factors for actual store choice. The research design focused on known purchasers of a single merchandise line, from one of two competing and distinctly different types of retailers---an audio

equipment specialty store and a full-line department store. The study examined the *degree of importance* for the following store characteristics in relation to store choice behavior: convenience of store location; best price and/or "deals"; guarantee/warranty policies; salesmen's expertise; and variety of merchandise to choose from.

Audio equipment specialty store patrons indicated that the expertise of the retail salesmen and the assortment of brands and models were critically important; on the other hand, the department store patrons were primarily concerned with convenience of store location and guarantee/warranty policies. In contrast, the best price and/or "deal" was of only limited value as a discriminant between patrons of the two types of retailers. It was the only store image characteristic found to be insignificant in contributing to the determination of store choice behavior. These results suggest that consumers who purchase similar merchandise from different types of retail establishments might constitute unique image or benefit segments which should be catered to differently by each type of retailer in terms of featuring specific store image attributes as part of its merchandising and promotional strategies.

Hansen and Deutscher (1977-78) examined the importance of store attributes in department and grocery stores as identified by consumers. Department store shoppers appear to be concerned about the quality of the store merchandise; the degree of ease of the shopping process; and post-transaction satisfaction. Grocery store shoppers were concerned about the store's merchandise mix and were quite concerned about the ease of the shopping

process. Additionally, they were more concerned that stores be clean. Given the overall high correlation between the ranks of the attributes for the two store types, a number of similarities exist in what is important to shoppers in evaluating a store. However, enough differences in the importance scores between store types warrant an independent examination of the results.

The authors also used segmentation analysis to explain that the importance of store attributes may vary across categories of demographic and consumer lifestyle variables. The study revealed that older consumers that are more established in the community, but with lower income and education levels, tended to place more weight on a store's advertising and its policy on adjustments than did the younger group. The younger and better educated consumers weighed the price-related and efficiency components more highly than the older consumers. Consumers who did not enjoy shopping wanted to spend as little time as possible shopping. They wanted to reach the store quickly and easily, and to check out of the store rapidly, as well. Furthermore, it was important to these consumers that returns and adjustments be as little trouble as possible. On the other hand, the people who did enjoy shopping placed much more emphasis on low prices and specially-priced items. Advertising and the helpfulness of the retailer's sales personnel were most important to them.

Lumpkin et al. used the determinant attribute model of Myers and Alpert (1968) to identify store attributes which elderly shoppers seek when buying apparel and the impact of these determinant attributes on store choice. The authors found that the five most determinant attributes related to the quality/price

relationship and finding satisfactory products. It was found that while differences could be found across age groups, the elderly generally based their patronage decisions on the same attributes as their younger counterparts.

Lumpkin and Hite (1988) investigated whether retailers understood the needs of the elderly consumer and whether they were providing for these needs. Retailers were found to place a greater emphasis on profit-related factors, while convenience and product-related aspects were desired by the elderly consumer. While there were significant differences between retailers and consumers on ten store attributes, they may or may not be the determinant attributes most important to the elderly. The authors suggested that the attributes that have high importance to the elderly but not yet perceived to be provided by retailers or at least not provided to the extent the elderly desire should be investigated.

Hortman, Allaway, Mason, and Rasp (1990) evaluated the efficacy of different customer segmentation approaches to better understand consumer choice among competing supermarkets. The authors found that in comparing modeling results across the three segmentation approaches (behavioral, perceptual, and demographic/socioeconomic) that distance, low prices, quality of products sold, and atmosphere tended to dominate grocery shopping decisions. Among the three demographic/socioeconomic/psychographic segments (baby boomers, middle-aged workers, and elderly/retired) supermarket attributes varied in importance and significance. Low price increased in importance with age. The elderly placed primary importance on low prices and the atmosphere of the stores in addition to coupon promotions.

Oates, Shufeldt, and Vaught (1996) studied psychographic characteristics of the elderly consumer to determine lifestyle groups and the relationship between these groups and retail store attributes. The authors found that the lifestyle groups differ significantly when considering store/personnel quality (fair prices, quality products, well-known brands, etc.) Overall, lifestyle groups do not differ significantly when considering store characteristics (store temperature, uncrowded shopping, salespeople their own age, etc.); discount/sales polices (reduced prices, coupon acceptance, special discounts, etc.), or service attributes (home delivery, package carryout, phone ordering, etc.)

However, there were some significant differences between groups when applying the *post hoc* comparison tests. Specifically, the family orienteds and the quiet introverts differed significantly in their consideration of the store/personnel quality, with the former group placing greater importance on the attributes related to store/personnel quality in selection of a retail outlet. Those that were family oriented and active retirees differed significantly from other lifestyle groups regarding store characteristics, with the former group placing little importance and the latter group placing more importance on this attribute when selecting a retail outlet. When considering a store's discount/sales policies, the family oriented and quiet introverts differed significantly from the other lifestyle groups. The quiet introverts view these store policies as important considerations, while the family oriented group does not place great emphasis on them. Service attributes are not seen as important by any of the lifestyle groups.

Piron (2001) surveyed Singapore consumers to identify which service activities and communication initiatives are prime determinants of retail store loyalty. The author examined the relationship of store loyalty and the following seven attributes: location convenience, store image, price of merchandise, variety and assortment of merchandise, quality of merchandise, advertising and promotion and service. When asked directly about what is important in selecting a grocery retailer, the respondents stated product quality, prices, and mix are more important than other factors. However, when behavior was assessed, three of the seven variables were found to be statistically significant and strong determinants of retail patronage. Proximity of store location is a significant determinant of store loyalty. The service level offered by the stores also significantly correlated with store loyalty. The data also identified advertising and promotion activities as significantly related to store loyalty, highlighting the importance of consistent communication in developing and maintaining a relationship with customers. From this literature, the following research hypothesis is proposed:

H1: Determinant attributes that influence grocery store selection vary based on elderly consumers' *primary* grocery store choice.

Store Patronage Behavior and Age

Mason and Smith (1974) found that the following results, when profiling low-income senior citizen shoppers, appear to be a function of age rather than other variables: (1) the tendency of the senior citizen to engage primarily in

morning shopping and not to shop at night, (2) a tendency for the senior citizen to favor the central business district as a place for the purchase of consumer durables, and (3) a tendency to engage in a process of physical search to a greater extent than do other groups of shoppers. Woodside and Trappey (1992) while testing a series of hypotheses on attitude-accessibility and primary store choice found that age was associated with primary store choice.

Zeithaml (1985) investigated the relationships between demographic factors (sex, female working status, age, income and marital status) and preparation for and execution of supermarket shopping. Results indicate that the demographic groups differ in significant ways from the traditional supermarket shopper. In particular, the author found that as age increased, shopping time, number of supermarkets visited weekly, and number of weekly shopping trips all increased. The older shopper spent more time per shopping trip and made more frequent trips. In general, older shoppers planned more for shopping than younger shoppers. Older shoppers also tended to use information more and to economize more than younger shoppers. Finally, older shoppers and younger shoppers found shopping to be fun, but the older shoppers also found shopping to be important.

Burt and Gabbott (1995) examined the impact of store type, gender and age on the store patronage behavior of the elderly in three medium-sized Scottish towns. The authors assessed the effects of these variables on store choice; the reasons for store choice; and defined store attributes for non-food purchases. Age had some bearing, in that the "younger" elderly exhibited a

preference for national clothing chains while the "older" elderly showed a greater inclination to patronize local stores.

The reasons for store choice by elderly consumers showed a clear bias towards what can be categorized as product-related rather than store-related attributes. The product-related factors such as quality and product features (style/fit) were the most highly valued. The criteria most closely associated with the store itself (location, environment, service, reputation) tended to score poorly. Habit and loyalty, a behavior factor rather than a specific attribute, was also seen to be significant for certain groups. The "younger" elderly viewed quality and product features as central issues.

Miller and Kim (1999) and Miller, Kim, and Schofield-Tomschin (1998) studied rural residents of Iowa aged 50 and older to determine the effects of aging on apparel and home furnishing consumption within the rural community trade area. Age was significantly related to inshopping behavior (shopping with local retailers). The older group (age 65 and older) indicated they shopped more frequently in town than the late middle age group (age 50- to 64- years old). Age positively influenced the rural resident's level of perceived shopping with local merchants.

Burton, Lictenstern, and Netemeyer (1999) examined whether exposure to sales flyers used by retail grocery stores is related to the subsequent purchase behavior of customers and, if so, to what degree. The results of examining the relationship between demographic variables and exposure to the advertising sales flyers showed that older consumers and women are more likely to look at

the sales advertisement. In addition, findings show that consumers with less education and greater household income are more likely to look at the store advertisement.

Odekerken-Schroder, De Wulf, Kasper, Kleijnen, Hoekstra, and Commandeur (2001) assessed the relationship between three dimensions (technical quality, functional quality, and relational quality) and store loyalty as moderated by age, gender, and store size. The results suggested that elderly consumers were relatively more strongly affected by technical quality (relates to merchandise selection and product availability in the store) than younger consumers. This finding implies that a store paying additional attention to its technical quality may mainly reap benefits in its older target segment. A potential reason underlying this outcome might be that older consumers have relatively more time at their disposal than younger consumers, allowing them to explore and enjoy the benefits of an extended product assortment, which could explain their heightened sensitivity to the merchandise offered. From this literature, the following research hypothesis is proposed:

H2: Determinant attributes that influence grocery store selection vary based on age sub-groups (age 65 – 74 and age 75 and older).

Activity and Mobility

Physical and mental aging affect human functioning in many ways. Physical aging alters energy levels; affects stature, mobility and coordination; alters physical appearance; and increases susceptibility to physical and mental

illness. Because aging reduces both the body's capacity to coordinate its systems, aging reduces the supply of physical energy that the body can mobilize. Physical activity also depends on the structure of the body and the ability to move effectively. As people grow older, they get shorter, partly because bones that have become more porous develop curvature, and partly because some older people carry themselves with a slight bend at the hips and knees. A height loss of three inches is not uncommon. Older women are especially likely to find themselves too short to reach conveniently in environments where heights and widths are the common "adult standard" (Manheimer, 1994, p.77).

Bone (1991) found that many persons characterized as active are still in the work force. Others are starting second careers, continuing their education, or are active in volunteer, civic, or political organizations. Yet a substantial number of individuals have significantly reduced their activity level. This reduction may be due to a loss of important people in their social systems, such as a spouse or sibling, a loss of health, or the normative cultural expectation that as people age they should become less active. Bone (1991) emphasized that activity level and health are critical variables in segmenting the elderly market.

Miller et al. (1998) studied rural residents of Iowa aged 50 and older to determine the effects of activity level on apparel and home furnishings consumption within the rural community trade area. Those actively involved were more satisfied with aspects of the community than their less active counterparts, and they expressed stronger intentions to shop with local retailers.

Activity level was found to be significantly related to inshopping (shopping with local retailers).

According to Dychtwald (1997), unlike past generations, consumers in late adulthood (age 65-79) are often living active and independent lifestyles. The fastest growing population is the over-80 group, largely women living alone. Members of this group have the hardest time shopping and getting around and often have difficulty with tasks and activities that younger people take for granted. Because of their loss of vitality and independence, this group is looking for services that they used to perform themselves, such as financial management, household maintenance and shopping.

Limitation of activity in elderly persons is critical to quality of life. Loss of functional ability results in dependence on others to carry out basic activities of daily living. According to Penning (1990), almost forty-seven percent of the Canadian elderly surveyed reported receiving informal assistance from a spouse or others in regard to grocery shopping. Older males and those with greater disability were also more likely to report receiving assistance in regard to grocery shopping. Age is the predominate factor in predicting activity limitations. While only nine percent of persons aged 70 to 74 have significant limitations in activity, twenty-nine percent of persons over 85 years old have limitations. The accumulation of chronic non-life-threatening illness, chiefly arthritis and sensory impairment, is the major factor in limiting physical activity (Manheimer, 1994). Data from the Centers for Disease Control and Prevention (2000) indicate that about twenty-eight percent to thirty-four percent of adults aged 65 to 74 and

thirty-five percent to forty-four percent of adults aged 75 or older are inactive, meaning they engage in no leisure-time physical activity (Duncker & Greenberg, 2000). Bone (1991) analyzed segmentation methods to conclude that fifty-five to sixty percent of the mature market (age 65 and older) can be characterized as active.

Lumpkin and Hunt (1989) proposed that the elderly who are self-reliant with respect to mobility are likely to have different patronage behavior than those who are dependent upon others for transportation. While "mobility" could also include physical aspects (i.e., poor eyesight, using a walker, etc.) the authors used the term as synonymous with *transportation* and interchangeably. The effect that lack of mobility has on various patronage behaviors when the elderly shop for apparel was examined. Mobility was found to not have a significant influence on type of retail store frequented. The dependent elderly seem to have similar patronage behaviors to their self-reliant cohorts. However, mobility may influence switching patronage between stores of a given type. Additionally, it was found that mobility is related to the elderly's psychographic profiles and convenience needs. The self-reliant lead a more active, confident lifestyle. Dependents place more emphasis on convenience in getting to the store. Other convenience factors which are of greater concern to the dependent elderly include having stores close together, convenient entrances and exits, rest areas, and package carryout. Convenient parking, readable product labels, and a comfortable physical environment inside the store are highly desired by both

dependent and self-reliant elderly. Based on the research on activity level and mobility among the elderly, the following hypotheses are proposed:

H3: Determinant attributes that influence grocery store selection vary based on levels of physical activity.

H4: Determinant attributes that influence grocery store selection vary based on elderly mobility (transportation).

Health

Gerontologists consider health to be the key variable when distinguishing between the "young old" and the "old old". Based on segmentation methods, forty-seven percent of the elderly were classified as unhealthy (Bone, 1991). Positive health evaluations decline with age. Based on a report by Duncker and Greenberg (2000), twenty-seven percent of elderly persons assessed their health as fair or poor compared to nine percent for all persons. In 1997, among those 65-74 years old, thirty percent reported a limitation caused by a chronic condition. In contrast, over fifty percent of those 75 years and over reported they were limited by chronic conditions. The National Council on the Aging, Inc. (2002) reported that of the persons 65 years and older surveyed, 28% reported personal health as fair/poor; 25% reported personal health as good; and 47% percent reported personal health as excellent/very good. According to Greenberg (2002), in 1997, more than half of the elderly population (54.5%) reported having at least one disability. Over one-third (37.7%) had at least one severe disability. Over 4.5 million (14.2%) had difficulty in carrying out activities

of daily living (ADLs) and 6.9 million (21.6%) reported difficulties with instrumental activities of daily living (IADLs).

Disability takes a much heavier toll on the very old. Almost three-fourths (71.5%) of those age 80 and over reported at least one disability. More than half (53.5%) had one or more severe disabilities. The percentage of those age 80 and over having difficulty with ADLs (27.5%) and IADLs (40.4%) is about double that of the age 65 and over population in total. ADLs include bathing, dressing, eating, and getting around the house. IADLs include preparing meals, shopping, managing money, using the telephone, doing housework, and taking medication. Limitations on activities because of chronic conditions increase with age and the percentages of elderly with disabilities increase sharply with age.

According to Rogers (2002), self-reported health reflects physical, emotional, and social aspects of health and well-being. This measure correlates closely with measures of physical functioning and mortality. Most older people under age 85 assess their health as good or excellent. As people age, their self-assessments of health as well as physical functioning consistently decline. In 2001, 35 percent of those age 65-74 reported excellent or very good health, compared with 21 percent of those age 85 and older. During the period 1994 to 1996, seventy-two percent of older Americans reported their health as good, very good, or excellent. Women and men reported comparable levels of health status (Federal Interagency Forum on Aging-Related Statistics, 2000). Based on this research on the health of the elderly population, the following hypothesis is proposed:

H5: Determinant attributes that influence grocery store selection vary based on self-reported healthiness levels.

Summary

This chapter reviewed the elderly consumer literature pertinent to the objectives of this study. While most studies on the elderly consumer have focused on the relationships between age, retirement, and/or income level on expenditure patterns, shopping behaviors and patronage decisions, this literature review indicates that few have focused on the effects of age, health, activity, and mobility on shopping behaviors and store patronage decisions. Of those that did, most were conducted in a non-food context related to purchasing behavior and store choice, particularly in apparel retail. As the elderly population continues to increase, more research is needed to continue exploring and investigating the marketplace needs of the elderly. Dychtwald (1997) indicates that there are very distinct needs for each age segment, but emphasizes that convenience and customer service will become critically more important to all elderly consumers. This research was designed to examine the store attributes that are most desired by the elderly consumer when shopping for groceries, and how these desired store attributes determine store choice. Additionally, this research was designed to examine the relationships between determinant attributes and age, health, activity, and mobility.

CHAPTER III

METHODOLOGY

This study utilizes the determinant attribute model developed by Lumpkin et al. to examine the determinant attributes used by the elderly consumer when choosing among the various grocery retailers. This study specifically identifies and looks at differences in determinant attributes based on age, activity level, mobility, and self-reported healthiness. In this chapter, the discussion of methodology begins with the research design, the operationalization of the research variables, and the survey instrument. Next, description of the sample selection and data collection procedures are presented, followed by the data coding and data analysis.

Research Design

Two "levels" of consumer evaluation for every product, brand, pattern, style, or other individual offering to the public exist according to Myers and Alpert (1968). Level one is the *overall* attitude toward the item, in terms of its suitability or desirability. Level two is attitudes toward each of the item's *component features* or characteristics. These attitudes presumably combine or summate in some way to produce an "overall attitude" toward the item.

Myers and Alpert (1968) examined *determinant attitudes*, their meaning and relevance to marketing strategy, and methods by which these attitudes could be measured. The researchers explained that in the wide spectrum of all of the

various features of a product or brand, there are some features which predispose consumers to actions (that is, preference for the product, actual purchase, making recommendations to friends, etc.) and others which do not. Attitudes toward features which are most closely related to preference or to actual purchase decisions are said to be determinant; the remaining features or attitudes---no matter how favorable---are not determinant. Alpert (1971) defined determinant attributes as attributes projected by the product's image which lead to the choice of that product. Determinant attributes are identified by comparing the combined scores for importance and degree of differentiation given each attribute, using an average combined score for all attributes (Arnold et al., 1983).

The determinant attribute model developed by Lumpkin et al. based on the Myers and Alpert (1968) determinance model was used to analyze determinant attributes and store choice of elderly consumers when purchasing groceries. The higher the determinance score for the attribute, the more determinant the attribute is in the store patronage decision.

Variables in the Study

The independent variables were primary store choice, age, activity level, mobility, and self-reported healthiness. The dependent variables included store attributes that describe in-store services and convenience, physical environment, quality and price characteristics.

Survey Instrument

The initial questionnaire was developed using the store attributes in the Lumpkin et al. study with some modifications to provide store attributes appropriate for grocery retailing. This questionnaire consisted of thirty-six store attributes that described in-store services and convenience, physical environment, quality and price characteristics (Appendix A). In addition, respondents were asked demographic questions that assessed their primary store choice, age, gender, self-reported healthiness, activity level, and mobility (mode of transportation to the grocery store). This questionnaire was pre-tested on a convenience sample of persons aged 65 and older who frequented a local senior citizen center or church in middle Tennessee or central Indiana in an effort to reduce the survey length and to resolve any problems with ambiguous wording and clarity of questions. The set of 36 items that measured attribute importance was pre-tested on this sample of 54 people. Seventy-two percent of the sample (39 respondents) completed the questionnaire. A decision to reduce the survey length using the following criteria was based on feedback from the pilot test respondents and discussions with senior center directors about appropriate survey formats for the elderly population. Only those attributes that were rated as *"very important"* or *"extremely important"* by 70% or more of the respondents were selected from the original questionnaire to reduce the survey length (Table 1). One question (*"placement of items on lower shelves"*) was reworded for clarity (*"placement of items on lower shelves for ease of reach"*) and also

Table 1. Pilot Study

WHEN BUYING GROCERIES, HOW IMPORTANT ARE THE FOLLOWING STORE ATTRIBUTES?

Store Attribute	Very Important (4)	Extremely Important (5)
Delivery to home	14%	0%
Phone in orders	11%	0%
Transportation to store	24%	11%
Convenient parking	30%	32%
Store location close to home	28%	41%
Located near a variety of stores	30%	14%
Convenient entrances and exits	33%	36%
Availability of other services in the store (bank, pharmacy, post office, etc.)	21%	24%
Seating area in store	19%	11%
Comfortable physical environment (temperature, lighting, etc.)	44%	23%
Consistent location of items for ease of finding items	**39%**	**48%**
Small store for easy walking	26%	18%
Wide aisles	**41%**	**32%**
Limited variety so items can be found easily	26%	5%
Placement of items on lower shelves	24%	14%
Restrooms in store	**33%**	**41%**
Variety of brands	46%	18%
Availability of advertised products	**38%**	**36%**
Easy to read signs/price stickers	**31%**	**56%**
Helpful cashiers, baggers, other store personnel	**29%**	**61%**
Convenient/fast checkouts	**36%**	**44%**
Package carryout	36%	26%
Help in finding items In store	**33%**	**38%**
Food products suited to my dietary needs	**46%**	**28%**
Package/container sizes suited to my age/household needs	**53%**	**39%**
Prepared foods available	26%	15%
Quality products	**54%**	**28%**
Attractive prices	**46%**	**44%**
Store reputation	**41%**	**36%**
Well-known labels/brands	50%	17%
Accepts coupons	**41%**	**35%**
Provides a store discount card	18%	36%
Opportunity to support local schools and/or churches through your purchases	42%	24%
Sales/Marked-down prices	**59%**	**26%**
Ability to return unsatisfactory items	**30%**	**54%**
Discounts for senior citizens	**29%**	**61%**

Bold items are the store attributes that received 70% or more responses for "*very important*" and "*extremely important*".

included in the second questionnaire. A total of eighteen store attributes was used in the revised questionnaire. No further pre-test was conducted.

The revised questionnaire contained eighteen attributes that described in-store services and convenience, physical environment, quality and price characteristics. In addition, respondents were asked to identify the store that they shopped at most for groceries (primary store). The primary store was classified as a combination store, conventional supermarket, discount store, supercenter, warehouse club, or warehouse store based on retail grocery store definitions (Levy & Weitz, 2001). Demographic questions were also included that assessed the age, gender, self-reported healthiness, activity level, and mobility (mode of transportation to the grocery store) of each respondent. Age was determined by asking each respondent to identify the year in which he or she was born. Self-reported healthiness refers to the respondent's self-assessment of his or her personal health status. Self-ratings provide a simple, direct, and global way of capturing perceptions of health using criteria that are as broad and inclusive as the responding individual chooses to make them (Idler & Benyamini, 1997). Healthiness was measured by self-reports of health status as "excellent", "very good", "good", "fair", or "poor", in line with previous research (Duncker & Greenberg, 2000; Federal Interagency Forum on Aging-Related Statistics, 2000; and Rogers, 2002). Activity level refers to the respondent's self-assessment of how active he or she is. Activity level was measured by self-reports of activity level as "very active", "active", "slightly active", or "not active at all". These classifications were based on feedback from the pilot test respondents,

discussions with senior center directors about typical elderly activity patterns, and previous research (CDC, 2002). Finally, mobility, the term used synonymous with *transportation,* (Lumpkin & Hunt, 1989) *was* measured by asking respondents to identify if they drove themselves to the grocery store; if they were driven by someone else to the grocery store; or if they walked to the grocery store.

This self-administered questionnaire was used to identify the grocery store attributes that were most important to the elderly population and to test the research hypotheses addressing the determinant attributes used by elderly consumers when choosing among the various grocery retailers. The final questionnaire (Appendix B) was administered to elderly consumers in nine metropolitan cities and surrounding areas who frequented local senior citizen centers.

Sample Selection

According to the U.S. Census 2000, the elderly population, persons 65 years or older, numbered 35 million in 2000. They represented 12.4 percent of the U. S. population, about one in every eight Americans. About half (52%) of the 65-plus population lived in nine states: California, Florida, Illinois, Michigan, New Jersey, New York, Ohio, Pennsylvania, and Texas. Each of these nine states has a population range from 1.1 million to 3.6 million of persons age 65 and older. The research population was drawn from these nine states.

Considering that most persons age 65 and older (77.5%) lived in metropolitan areas in 2000 (U.S. Department of Commerce, Bureau of the Census, 2000), a research sample was achieved by soliciting participation from senior centers in nine metropolitan cities and surrounding areas that have been identified as one of the fifty largest metropolitan cities in the United States (Atkinson & Gottlieb, 2001). The following metropolitan areas/cities were randomly chosen for the study: Los Angeles, California; Orlando, Florida; Chicago, Illinois; Detroit, Michigan; northern New Jersey; New York, New York; Cleveland, Ohio; Pittsburgh, Pennsylvania and Dallas, Texas. 502 senior centers identified from lists provided by each state's Department of Aging were contacted prior to the sampling process to solicit participation (Appendix C). A total of twenty-seven centers from the nine states responded and agreed to participate. Nine hundred questionnaires along with an orientation letter (Appendix D) for each senior center director were mailed to the twenty-seven centers with a minimum of fifty questionnaires being sent to each state.

Data Collection

For this study, data were collected from elderly consumers (aged 65 and older) who lived in the nine metropolitan cities and frequented the local senior citizen centers. The data was received from twenty-six senior citizen centers during the Summer of 2003. The senior center directors distributed and collected the self-administered questionnaires. Each respondent was given a University of Tennessee ink pen as a gift for participation after completing the questionnaire.

A follow-up letter (Appendix E) requesting the return of completed questionnaires was mailed after a three-week period to senior centers that had not responded. A total of 527 questionnaires were returned for analysis, resulting in a 58.6% response rate. Respondents were excluded who: (1) were under the age of 65 (n = 89) and (2) were missing data on determinant and demographic variables (n = 72). A total of 366 (40.7%) questionnaires were deemed usable and were included in the data analysis.

Follow-Up Procedure

After data collection, each senior center director was mailed a follow-up letter thanking them for participating in the research study (Appendix F). Each letter outlined what the senior center director could expect next, including a time frame in which they could anticipate the study results.

Data Coding

Coding is a procedure where data are categorized and transformed into symbols that can be tabulated and counted. The data for this research were coded after consulting Middle Tennessee State University Office of Information Technology. As suggested by the MTSU OIT, the researcher entered the coded data on Microsoft® Excel. Coding was done by the researcher after all of the data were collected.

In coding the data, an identification number was consecutively assigned to all the completed questionnaires. The importance Likert-style scale questions

were coded "1" for not important, "2" for slightly important, "3" for moderately important, "4" for very important, and "5" for extremely important. Likewise, the Likert-style scale questions for agreement were coded "1" for not at all, "2" for sometimes, and "3" for very much so. Primary store choice was coded "1" for combination store, "2" for conventional supermarket, "3" for discount store, "4" for supercenter", "5" for warehouse club, and "6" for warehouse store. The year of birth was coded "1" for 1929 – 1938 and "2" for 1928 and any year prior to 1928. Gender was coded "1" for male and "2" for female. Activity level was coded "1" for very active, "2" for active, "3" for slightly active, and "4" for not active at all. Overall health was coded "1" for excellent, "2" for very good, "3" for good, "4" for fair, and "5" for poor. Mobility (mode of transportation to the grocery store) was coded "1" for drive myself, "2" for driven by someone (family member, friend, public transportation, etc.), and "3" for walk.

Data Analysis

The determinant attribute model developed by Lumpkin et al. based on the Myers and Alpert (1968) determinance model was used to analyze determinant attributes and store choice of elderly consumers when purchasing groceries. Determinance values were calculated for the eighteen attributes related to grocery retailing. To measure determinance values, respondents were asked three questions regarding each attribute: (1) the importance of the attribute with regard to their grocery purchases (I); (2) if the store they shop at most for groceries has the attribute (R); and (3) if stores in general that sell groceries have

the attribute (G). A five point scale was used for question #1 and a three point scale will be used for questions #2 and #3. The responses from these questions were used in the following formula to calculate determinance values:

$$D_i = I_i [(R_i - G_i) + C] \quad \text{where:}$$

D_i = Determinance value for $_i$th attribute

I_i = Relative importance rating for $_i$th attribute

R_i = Belief as to the extent to which *their grocery retailer* possesses the $_i$th attribute

G_i = Belief as to the extent to which *grocery retailers in general* possesses the $_i$th attribute

C = A constant added to the formula to avoid problems with negative determinance values (in this instance, the constant will be 3, because a five point scale will be used for question #1)

This method for measuring determinance value for an attribute is based on suggestions by Blakney and Sekely (1994); Lumpkin et al.; Myers and Alpert (1968); and Sheth and Talarzyk (1972). The method of direct, self-reporting questions to measure determinance value is more efficient and reliable than methods such as conjoint analysis, information display board, regression, or importance only questioning (Alpert, 1971; Heeler, Okechuku, & Reid, 1979).

While the determinance score provided a relative ranking for each attribute, it did not provide a test of difference across the independent variables of primary store choice, age, activity level, mobility, and self-reported healthiness. Multiple Discriminant Analysis (MDA) was used for this purpose. Multiple

Discriminant Analysis generates linear functions based on the store attributes that best discriminate among the independent variables and provides an overall test for significant difference among these independent variables. The relative importance of each attribute in discriminating among the independent variables was determined by standardized discriminant coefficients.

CHAPTER IV

RESULTS

The purpose of this chapter is to present results of the data analysis for the 366 respondents who completed the study questionnaire. The chapter is divided into three sections. A summary of the steps and statistical analytic methods used to investigate the study hypotheses are given in Table 2.

In the first section of the chapter, a general picture of the survey sample is given through descriptive statistics for the elderly respondents. In section two, importance ranking is provided for the 18 store characteristics and store services. The mean and standard deviation for each attribute are provided.

In section three, the determinant attribute model was used to analyze determinant attributes and store choice of elderly consumers when purchasing groceries. The importance of the attribute and whether the retail store type the respondents shop most for groceries and grocery retailers in general possess the attribute was used to calculate a determinance score for each attribute. This determinance score was used to provide a relative ranking for each attribute.

In section four, Multiple Discriminant Analysis (MDA) was used to provide a test of difference across the independent variables primary store choice, age, activity level, mobility (mode of transportation to grocery store), and self-reported healthiness. Multiple Discriminant Analysis generated linear functions based on the store attributes that best discriminate among the independent variables and

Table 2. Data Analysis Procedure

Section	Analysis	Purpose
Data summary	Descriptive Statistics Frequencies Means Standard Deviations	To summarize data and to inspect the data for data entry errors
Store characteristics and services	Importance ranking	To rank the 18 attributes based on importance mean score
Determinant attributes	Determinant attribute model	To identify determinant attributes and store choice of elderly consumers when purchasing groceries
Independent variables	Multiple Discriminant Analysis	To generate linear functions based on store attributes that best discriminate among the independent variables; to determine relative importance of each independent variable
Test Hypotheses	Frequency Distributions Independent T-tests	To test hypotheses H1, H2, H3, H4, and H5

provided an overall test for significant difference among these independent variables. Standardized discriminant coefficients were used to determine the relative importance of each attribute in discriminating among the independent variables.

The final section presents the results of the data analyses for each of the research hypotheses. Frequency distributions for primary store choice, age groups, activity level, self-reported healthiness, and mobility were examined to determine characteristics of the data. Independent samples t-tests were conducted to test the hypotheses.

Section One

The first section presents a summary of the frequency distributions of the demographic characteristics of the study sample. Included in the table are both absolute and relative frequencies which are presented in tabular form.

Respondents' Characteristics

The frequency distributions of the demographic characteristics of the elderly respondents are summarized in Table 3. The sample consisted of 366 elderly consumers. Demographic data included the elderly respondent's gender, age, activity level, self-reported healthiness, mobility, primary store choice and geographical residency.

Table 3. Frequency Distributions of Respondent Characteristics

Demographic Characteristics	Absolute Frequency (N = 366)	Relative Frequency (Percent)
Gender		
Male	64	17.5
Female	302	82.5
	366	100.0
Age		
65 – 74	137	37.4
75 and older	229	62.6
	366	100.0
Activity Level		
Very Active	91	24.9
Active	192	52.4
Slightly Active	75	20.5
Not Active At All	8	2.2
	366	100.0
Self-reported Healthiness		
Excellent	28	7.7
Very Good	107	29.2
Good	152	41.5
Fair	75	20.5
Poor	4	1.1
	366	100.0
Mobility		
Drive self	220	60.1
Driven by someone	132	36.1
Walk	14	3.8
	366	100.0
Primary Store		
Combination Store	303	82.8
Conventional Supermarket	33	9.0
Discount Store	0	0.0
Supercenter	23	6.3
Warehouse Club	0	0.0
Warehouse Store	7	1.9
	366	100.0
Geographic Residency		
East	146	39.9
Great Lakes	113	30.9
Pacific West	39	10.7
Southeast	44	12.0
Southwest	24	6.5
	366	100.0

Gender

In the research sample, sixty-four men (17.5%) and 302 women (82.5%) completed the questionnaire.

Age

There were 137 (37.4%) respondents who were 65 to 74 years old and 229 (62.6%) respondents who were 75 years and older. The overall mean age of the sample was 76.94 years old (s.d. = 6.428).

Activity Level

Ninety-one (24.9%) of the respondents reported their activity level as very active; 192 (52.5%) were active; 75 (20.5%) were slightly active; and 8 (2.2%) were not active at all.

Self-reported Healthiness

Twenty-eight (7.7%) of the respondents rated their health as excellent; 107 (29.2%) rated their health as very good; 152 (41.5%) rated their health as good; 75 (20.5%) rated their health as fair; and four (1.1%) respondents rated health status as poor.

Mobility (mode of transportation to grocery store)

The majority of the respondents (60.1%, n=220) of the respondents drove themselves to the grocery store; 132 (36.1%) were driven by someone (family

member, friend, public transportation, etc.); and 14 (3.8%) walked to the grocery store.

Primary Store Choice

The majority of the respondents (82.8%, n=303) shopped primarily at a combination store; 33 (9%) shopped primarily at a conventional supermarket; 23 (6.3%) shopped primarily at a supercenter; and seven (1.9%) shopped primarily at a warehouse store.

Geographical Residency

Geographically, 39.9% lived in the eastern area of the United States (New Jersey, New York, Ohio, and Pennsylvania); 12.0% in the southeast area (Florida); 30.9% in the Great Lakes area (Illinois and Michigan); 6.5% in the southwest area (Texas) and 10.7% in the Pacific west area (California).

Section Two

The second section presents a ranking of the eighteen store services and characteristics based on importance to elderly consumers. The mean and standard deviation for each attribute are presented in Table 4.

Importance Rankings

The attributes that were most important to elderly consumers related to the quality/price relationship and finding satisfactory products. Elderly

Table 4. Store Services and Characteristics Importance Ranking

STORE CHARACTERISTICS/STORE SERVICES	MEAN	STANDARD DEVIATION
Attractive prices	4.40	.736
Quality products	4.29	.781
Ability to return unsatisfactory items	4.28	.894
Easy to read signs/price stickers	4.26	.844
Discounts for senior citizens	4.24	1.029
Store reputation	4.23	.864
Helpful cashiers, baggers, other store personnel	4.17	.851
Sales/Marked-down prices	4.14	.922
Convenient/fast checkouts	4.13	.852
Accepts coupons	4.07	1.031
Availability of advertised products	4.05	.923
Help in finding items in store	4.01	.891
Consistent location of items for ease of finding items	3.99	.894
Restrooms in store	3.98	1.122
Wide aisles	3.96	.901
Package/container sizes suited to my age/household needs	3.93	.913
Placement of items on lower shelves for ease of reach	3.93	1.018
Food products suited to my dietary needs	3.85	.999

consumers want quality products with attractive prices --- value for the money. They also want signs and price stickers that are easy to read. Additionally, discounts for senior citizens were important to elderly consumers. Surprisingly, elderly consumers ranked package size suited to their age and household needs and food products suiting their dietary needs as the least important store attributes. Finally, the attributes dealing with physical aspects were rated relatively low in importance. While the elderly consumers rank help from store personnel as relatively high in importance, they do not seem to require special placement of food products due to physical limitations.

Section Three

The third section of this chapter presents a summary of the determinance scores for the store attributes. The determinant attribute model was used to analyze determinant attributes and store choice of elderly consumers when purchasing groceries. The importance of the attribute and whether the retail store type the respondents shop most for groceries and grocery retailers in general possess the attribute was used to calculate a determinance score for each attribute. The determinance score was used to provide a relative ranking for each attribute.

Attribute Determinance

The store attributes used by the elderly consumer segment when choosing among the various retailers for grocery purchases were measured

through calculating determinance scores for each of 18 attributes. In order to establish a relative cut-off point for which attributes are determinant and which are not, a simple one-tailed Z test was used to identify those attributes which are significantly above (or below) the mean (Alpert, 1971). In this procedure, the population mean and standard deviation are estimated with the grand mean from the sample (Lumpkin et al.). The higher the score, the more determinant that attribute is in the patronage decision. The results of the analysis are presented in Table 5. Figure 1 graphically shows the profile of mean determinance scores attributes. There are eight attributes that are significantly greater than the grand mean and should be considered as determinant attributes.

Four of the most determinant attributes relate to the quality/price relationship and finding satisfactory products. Elderly consumers want quality products with attractive prices --- value for the money. They also want signs and price stickers that are easy to read. Store reputation is also a determinant attribute for the elderly segment. The elderly also seek in-store services and convenience by desiring helpful cashiers, baggers, and other store personnel and convenient/fast checkouts.

It should be noted that while attractive prices and quality products --- getting value for the money --- are of utmost determinance, acceptance of coupons and discounts for senior citizens were rated relatively low in determinance. Furthermore, the elderly consumers were not extremely interested in the availability of advertised products.

Table 5. T-test for Determinant Attributes

ID	Store Attribute:	Mean*	Standard Deviation	t	P
D1	Consistent location of items for ease of finding items	12.6448	3.80692	-.413	.680
D2	Wide aisles	12.4617	3.71187	-1.368	.172
D3	Restrooms in store	12.3825	4.34866	-1.516	.130
D4	Availability of advertised products	12.5956	3.65279	-.688	.492
D5	Easy to read signs/price stickers	13.2760	3.60332	2.914	.004
D6	Helpful cashiers, baggers, other store personnel	13.1038	3.45383	2.087	.038
D7	Convenient/fast checkouts	12.9235	3.52286	1.067	.287
D8	Help in finding items in store	12.2760	3.50855	-2.460	.014
D9	Placement of items on lower shelves for ease of reach	11.8852	3.94037	-4.087	.000
D10	Food products suited to my dietary need	11.8689	3.59364	-4.569	.000
D11	Package/container sizes suited to my age/household needs	12.2268	3.67821	-2.602	.010
D12	Quality products	13.2404	3.31491	2.963	.003
D13	Attractive prices	13.8169	3.37547	6.177	.000
D14	Store reputation	13.1913	3.48720	2.547	.011
D15	Accepts coupons	12.6284	3.67348	-.514	.608
D16	Sales/marked-down prices	12.7732	3.65580	.214	.809
D17	Ability to return unsatisfactory items	13.1940	3.50547	2.548	.011
D18	Discounts for senior citizens	12.5984	4.00204	-.615	.539

*The grand mean for the sample = 12.727078

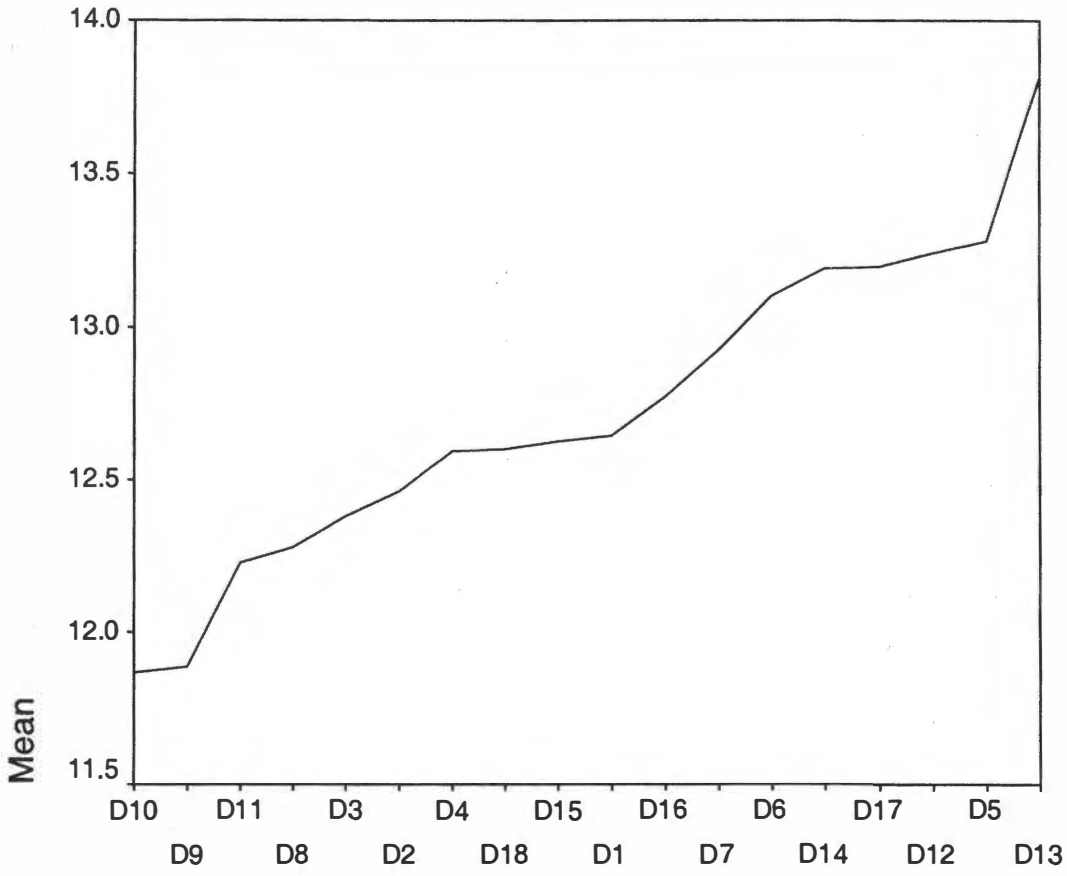

Figure 1. Profile of Mean Determinance Scores Across Attributes

The attributes dealing with physical aspects were rated relatively low in determinance. While the elderly desire help from store personnel, they do not seem to require physical attributes (wide aisles; restroom in stores; consistent location of items; placement of items on lower shelves for ease of reach; and help in finding items in store) that would help with physical limitations that might be experienced by the elderly population. It is also interesting to note that the elderly consumers displayed little concern for the availability of food products that are suited to their age, household size, and/or dietary needs.

Section Four

The fourth section of this chapter presents a summary of the multiple discriminant analyses. Multiple Discriminant Analysis (MDA) was used to provide a test of difference across the independent variables primary store choice, age, activity level, self-reported healthiness and mobility (mode of transportation to grocery store). Multiple Discriminant Analysis was performed on both the determinant and nondeterminant attributes.

The results of the data analysis for each of the research hypotheses are also presented in this section of the chapter. Hypothesis 1 states that determinant attributes that influence grocery store selection vary based on elderly consumers' *primary* grocery store choice. Hypothesis 2 states that differences exist between the determinant attributes for elderly consumers age 65 – 74 and elderly consumers age 75 and older in relation to grocery store choice. Hypothesis 3 states that differences exist between the determinant

attributes for grocery store choice based on an elderly consumer's physical activity level. Hypothesis 4 states that differences exist between the determinant attributes for grocery store choice based on an elderly consumer's mobility (mode of transportation to the grocery store). Hypothesis 5 states that differences exist between determinant attributes for grocery store choice based on an elderly consumer's self-reported health status.

Hypotheses 1 – 5 were tested using Multiple Discriminant Analysis. Determinance scores for each independent variable group provided a ranking of each attribute, but not a test of differences. MDA was used to provide a test of differences across age groups, activity levels, mobility, and self-reported healthiness status. MDA generated linear functions based on the store attributes that best discriminate among the primary store choice, age groups, activity levels, mobility, and self-reported healthiness status.

Differences in Determinant Attributes

Primary Store Choice

Hypothesis 1

H1: ***Determinant attributes that influence grocery store selection vary based on elderly consumers' primary grocery store choice.***

Multiple Discriminant Analysis was used to test this proposed difference. The results of the analysis are presented in Table 6. There were no differences found among primary store choice for the eight determinant attributes.

Table 6. MDA Results of Differences in Determinant Attributes Across Primary Store Choice

Determinant Attributes	Mean Determinance Scores By Primary Store Choice[a,b]				F-Test Prob.	Scheffe Test: Differing Groups[c]
	Combination Store (1)	Conventional Store (2)	Supercenter (4)	Warehouse Store (6)		
Easy to read signs/price stickers	13.1815	12.8788	14.0435	16.7143	.045	NS
Helpful cashiers, baggers, other store personnel	13.0495	12.9394	13.6087	14.5714	.594	NS
Convenient/fast checkouts	12.8020	13.4848	13.0870	15.0000	.299	NS
Quality products	13.1353	13.5152	13.5217	15.5714	.245	NS
Attractive prices	13.7261	13.9697	14.3478	15.2857	.537	NS
Store reputation	13.1452	13.2121	13.5217	14.0000	.889	NS
Sales/Marked down prices	12.8581	11.9697	12.5217	13.7143	.508	NS
Ability to return unsatisfactory items	13.2871	12.6364	13.0435	12.2857	.670	NS

Multivariate	Chi Square	Prob.	Percent Explained Variance
Function I	19.811	.707	67.1
Function II	6.580	.950	26.3
Function III	1.324	.970	6.6

[a] Scale ranges from low (1) to high (25) determinance.
[b] Discount stores and warehouse clubs were not chosen as primary stores.
[c] The mean difference is significant at the .05 level.

Therefore, Hypothesis 1 is not supported. Thus, the eight attributes (easy to read signs/price stickers; helpful cashiers, baggers, other store personnel; convenient/fast checkouts; quality products; attractive prices; store reputation; sales/marked-down prices; and ability to return unsatisfactory items) are determinant for elderly consumers regardless of primary store choice.

Age

Hypothesis 2

H2: ***Determinant attributes that influence grocery store selection vary based on age sub-groups (65 –74 and 75 and older).***

Multiple Discriminant Analysis was used to test this proposed difference. The results of the analysis are presented in Table 7. Of the eight determinant attributes, only one differs significantly across age groups: convenient/fast checkouts. Thus, the remaining seven are determinant for elderly consumers regardless of age. Elderly grocery shoppers want to have signs and price stickers that are easy to read; helpful store personnel; quality products; attractive prices; sales/marked down prices; and ability to return unsatisfactory items. The elderly are also interested in the reputation of the store. Significant differences were not found for determinant attributes that influence grocery store selection based on age. Therefore, hypothesis 2 is not supported.

Table 7. MDA Results of Differences in Determinant Attributes Across Age Groups

Determinant Attributes	Mean Determinance Scores By Age Groups[a]		F-Test Prob.	Scheffe Test: Differing Groups[b]
	65 –74 (1)	75 and older (2)		
Easy to read signs/price stickers	13.1679	13.3406	.658	NS
Helpful cashiers, baggers, other store personnel	13.1168	13.0961	.956	NS
Convenient/fast checkouts	**12.4161**	**13.2271**	**.033**	**1 from 2**
Quality products	13.3504	13.1747	.624	NS
Attractive prices	13.5474	13.9782	.238	NS
Store reputation	13.4818	13.0175	.218	NS
Sales/Marked down prices	12.6934	12.8210	.747	NS
Ability to return unsatisfactory items	13.2701	13.1485	.749	NS

Multivariate	Chi Square	Prob.	Percent Explained Variance
Function I	12.586	.127	100.0
Function II			
Function III			

[a] Scale ranges from low (1) to high (25) determinance.
[b] The mean difference is significant at the .05 level.

Activity Level

Hypothesis 3

H3: ***Determinant attributes that influence grocery store selection vary based on levels of physical activity.***

Multiple Discriminant Analysis was used to test this proposed difference. The results of the analysis are presented in Table 8. Of the eight determinant attributes, only one differs significantly across activity levels: easy to read signs/price stickers. Thus, the remaining seven are determinant for elderly consumers regardless of activity level. By looking at the results of the Scheffe test, the differences that do occur seem primarily between the very active elderly consumers and slightly active elderly consumers. Significant differences were not found for determinant attributes that influence grocery store selection based on levels of physical activity. Therefore, hypothesis 3 is not supported.

Mobility (mode of transportation)

Hypothesis 4

H4: ***Determinant attributes that influence grocery store selection vary based on elderly mobility (transportation).***

Multiple Discriminant Analysis was used to test this proposed difference. The results of the analysis are presented in Table 9. Of the eight determinant attributes, only one differs significantly across mobility: easy to read signs/price stickers. Thus, the remaining seven are determinant for elderly consumers regardless of mode of transportation to the grocery store. By looking at the

Table 8. MDA Results of Differences in Determinant Attributes Across Activity Levels

Determinant Attributes	Mean Determinance Scores By Activity Level[a]				F-Test Prob.	Scheffe Test: Differing Groups[b]
	Very Active (1)	Active (2)	Slightly Active (3)	Not Active At All (4)		
Easy to read signs/price stickers	**14.0220**	**13.3646**	**12.4000**	**10.8750**	**.007**	**1 from 3**
Helpful cashiers, baggers, other store personnel	13.3077	13.3281	12.3067	12.8750	.161	NS
Convenient/fast checkouts	13.2527	13.0156	12.3333	12.5000	.371	NS
Quality products	13.5385	13.2708	12.7733	13.5000	.516	NS
Attractive prices	14.3407	13.8698	13.0000	14.2500	.079	NS
Store reputation	13.9341	13.0677	12.6800	12.5000	.098	NS
Sales/Marked down prices	12.8901	12.9688	12.1200	12.8750	.386	NS
Ability to return unsatisfactory items	13.6813	13.2760	12.5067	12.1250	.139	NS

Multivariate	Chi Square	Prob.	Percent Explained Variance
Function I	24.155	.453	64.8
Function II	8.576	.857	24.0
Function III	2.734	.841	11.2

[a] Scale ranges from low (1) to high (25) determinance.
[b] The mean difference is significant at the .05 level.

Table 9. MDA Results of Differences in Determinant Attributes Across Mobility Mode

Determinant Attributes	Mean Determinance Scores By Mobility Mode[a]			F-Test Prob.	Scheffe Test: Differing Groups[b]
	Drive self (1)	Driven by Someone (2)	Walk (3)		
Easy to read signs/price stickers	**13.6955**	**12.6212**	**12.8571**	**.023**	**1 from 2**
Helpful cashiers, baggers, other store personnel	13.4000	12.7576	11.7143	.074	NS
Convenient/fast checkouts	13.1045	12.6364	12.7857	.478	NS
Quality products	13.4591	12.9848	12.2143	.214	NS
Attractive prices	14.1136	13.2955	14.0714	.085	NS
Store reputation	13.4136	12.8636	12.7857	.326	NS
Sales/Marked down prices	13.0182	12.4697	11.7857	.233	NS
Ability to return unsatisfactory items	13.5045	12.7652	12.3571	.105	NS

Multivariate	Chi Square	Prob.	Percent Explained Variance
Function I	15.279	.504	67.2
Function II	5.035	.656	32.8
Function III			

[a] Scale ranges from low (1) to high (25) determinance.
[b] The mean difference is significant at the .05 level.

results of the Scheffe test, the differences that do occur seem primarily between the elderly consumers who drive themselves to the grocery store and the elderly consumers who are driven by someone (family member, friend, public transportation, etc.) Significant differences were not found for determinant attributes that influence grocery store selection based on elderly mobility (transportation). Therefore, hypothesis 4 is not supported.

Self-reported Healthiness

Hypothesis 5

H5: ***Determinant attributes that influence grocery store selection vary based on self-reported healthiness levels.***

Multiple Discriminant Analysis was used to test this proposed difference. The results of the analysis are presented in Table 10. Of the eight determinant attributes, only one differs significantly across self-reported healthiness: easy to read signs/price stickers. Thus, the remaining seven are determinant for elderly consumers regardless of an elderly consumer's self-reported health status. By looking at the results of the Scheffe test, the differences that do occur seem primarily between the elderly consumers who report their health as very good and the elderly consumers who report their health as fair. Significant differences were not found for determinant attributes that influence grocery store selection based on self-reported healthiness levels. Therefore, hypothesis 5 is not supported.

Table 10. MDA Results of Differences in Determinant Attributes Across Health Status

Determinant Attributes	Mean Determinance Scores By Health Status[a]					F-Test Prob.	Scheffe Test: Differing Groups[b]
	Excellent (1)	Very Good (2)	Good (3)	Fair (4)	Poor (5)		
Easy to read signs/price stickers	**13.2143**	**14.3458**	**13.0395**	**12.2800**	**12.7500**	**.003**	**2 from 4**
Helpful cashiers, baggers, other store personnel	13.6071	13.4953	13.0395	12.5200	12.5000	.370	NS
Convenient/fast checkouts	12.5714	13.1682	12.8882	12.7467	13.5000	.894	NS
Quality products	14.7143	13.8224	12.8224	12.7333	12.7500	.010	NS
Attractive prices	14.8571	14.2150	13.5987	13.2000	15.7500	.071	NS
Store reputation	14.2857	13.4393	13.1316	12.5333	13.5000	.196	NS
Sales/Marked down prices	12.5000	13.3364	12.6447	12.3333	12.7500	.412	NS
Ability to return unsatisfactory items	13.6429	13.7383	13.0132	12.6800	12.0000	.238	NS

Multivariate	Chi Square	Prob.	Percent Explained Variance
Function I	39.152	.180	54.0
Function II	18.150	.640	31.6
Function III	5.718	.930	9.9
Function IV	1.762	.881	4.4

[a] Scale ranges from low (1) to high (25) determinance.
[b] The mean difference is significant at the .05 level.

Differences in Nondeterminant Attributes

The determinance model identified ten nondeterminant store attributes. These nondeterminant store attributes include: consistent location of items for ease of finding items; wide aisles; restrooms in store; availability of advertised products; help in finding items in store; placement of items on lower shelves for ease of reach; food products suited to my dietary needs; package/container sizes suited to my age/household needs; accepts coupons; and discounts for senior citizens. Multiple Discriminant Analysis was used to test for differences across the independent variables primary store choice, age, activity level, mobility, and self-reported healthiness.

Primary Store Choice

Multiple Discriminant Analysis was used to test for difference across primary store choice. The results of the analysis are presented in Table 11. Only one of the ten nondeterminant attributes differed significantly across primary store choice: consistent location of items for ease of finding items. Thus, the remaining nine are nonmdeterminant for *all* elderly consumers regardless of an elderly consumer's primary store choice. Warehouse stores had a higher determinance mean than the other 3 store types (combination, conventional, and supercenter) identified as an elderly consumer's primary store choice.

Table 11. MDA Results of Differences in Nondeterminant Attributes Across Primary Store Choice

Nondeterminant Attributes	Mean Determinance Scores By Primary Store Choice[a,b]				F-Test Prob.	Scheffe Test: Differing Groups[c]
	Combination Store (1)	Conventional Store (2)	Supercenter (4)	Warehouse Store (6)		
Consistent location of items for ease of finding items	**12.6106**	**12.3030**	**12.1304**	**17.4286**	**.008**	**6 from 1, 2, 4**
Wide aisles	12.5116	10.7879	13.5652	14.5714	.011	NS
Restrooms in store	12.4356	11.9697	12.0870	13.0000	.900	NS
Availability of advertised products	12.6766	11.2727	13.2174	13.2857	.145	NS
Help in finding items in store	12.1584	12.2424	13.2174	14.4286	.201	NS
Placement of items on lower shelves for ease of reach	11.7195	12.6061	12.6087	13.2857	.349	NS
Food products suited to my dietary needs	11.8482	11.2121	12.3478	14.2857	.196	NS
Package/container sizes suited to my age/household needs	12.1848	11.5455	12.6957	15.7143	.049	NS
Accepts coupons	12.5875	12.4545	13.5217	12.2857	.676	NS
Discounts for senior citizens	12.4158	12.9394	14.3478	13.1429	.145	NS

Multivariate	Chi Square	Prob.	Percent Explained Variance
Function I	47.491	.022	44.9
Function II	26.303	.093	35.0
Function III	9.673	.289	20.2

[a] Scale ranges from low (1) to high (25) determinance.
[b] Discount stores and warehouse clubs were not chosen as primary stores.
[c] The mean difference is significant at the .05 level.

Age

Multiple Discriminant Analysis was used to test for difference across the two sub-age groups (65 – 74 and 75 and older). The MDA of the ten nondeterminant attributes across age groups produced one significant discriminant function which accounted for 100 percent of the explained variance. The results of the analysis are presented in Table 12. Three of the ten nondeterminant attributes differed significantly across age groups: wide aisles; availability of advertised products; and placement of items on lower shelves for ease of reach. Thus, the remaining seven are nonmdeterminant for *all* elderly consumers regardless of an elderly consumer's age. The older age group (age 75 and older) had a higher mean of determinance for each of these three attributes. The differences seem reasonable and would be expected because of physical limitations that are commonly associated with the aging process.

Activity Level

Multiple Discriminant Analysis was used to test for differences across activity levels for the ten nondeterminant attributes. The results of the analysis are presented in Table 13. There were no significant differences among the activity levels for any of the ten nondeterminant attributes.

Mobility (mode of transportation)

Multiple Discriminant Analysis was used to test for differences across elderly mobility (mode of transportation) for the ten nondeterminant attributes.

Table 12. MDA Results of Differences in Nondeterminant Attributes Across Age Groups

Nondeterminant Attributes	Mean Determinance Scores By Age Groups[a]		F-Test Prob.	Scheffe Test: Differing Groups[b]
	65 –74 (1)	75 and older (2)		
Consistent location of items for ease of finding items	12.2117	12.9039	.092	NS
Wide aisles	**11.8321**	**12.8384**	**.012**	**1 from 2**
Restrooms in store	11.9343	12.6507	.127	NS
Availability of advertised products	**12.0438**	**12.9258**	**.025**	**1 from 2**
Help in finding items in store	12.1241	12.3668	.523	NS
Placement of items on lower shelves for ease of reach	**11.3358**	**12.2140**	**.039**	**1 from 2**
Food products suited to my dietary needs	12.1387	11.7074	.267	NS
Package/container sizes suited to my age/household needs	11.9635	12.3843	.290	NS
Accepts coupons	12.5693	12.6638	.812	NS
Discounts for senior citizens	12.2993	12.7773	.269	NS

Multivariate	Chi Square	Prob.	Percent Explained Variance
Function I	20.374	.026	100.0
Function II			
Function III			

[a] Scale ranges from low (1) to high (25) determinance.
[b] The mean difference is significant at the .05 level.

Table 13. MDA Results of Differences in Nondeterminant Attributes Across Activity Levels

Nondeterminant Attributes	Mean Determinance Scores By Activity Level[a]				F-Test Prob.	Scheffe Test: Differing Groups[b]
	Very Active (1)	Active (2)	Slightly Active (3)	Not Active At All (4)		
Consistent location of items for ease of finding items	12.5275	12.6198	13.0533	10.7500	.402	NS
Wide aisles	12.8791	12.4583	11.8667	13.3750	.314	NS
Restrooms in store	12.8571	12.0833	12.4667	13.3750	.488	NS
Availability of advertised products	13.0769	12.3958	12.5867	12.0000	.501	NS
Help in finding items in store	12.4615	12.2344	12.2800	11.1250	.768	NS
Placement of items on lower shelves for ease of reach	12.0330	11.6875	12.0667	13.2500	.632	NS
Food products suited to my dietary needs	12.2747	11.7917	11.6533	11.1250	.603	NS
Package/container sizes suited to my age/household needs	12.4945	12.2240	11.8667	12.6250	.732	NS
Accepts coupons	12.5495	12.7031	12.4267	13.6250	.818	NS
Discounts for senior citizens	12.7582	12.8281	12.1200	9.7500	.116	NS

Multivariate	Chi Square	Prob.	Percent Explained Variance
Function I	32.595	.340	52.2
Function II	15.626	.616	32.5
Function III	5.020	.755	15.2

[a] Scale ranges from low (1) to high (25) determinance.
[b] The mean difference is significant at the .05 level.

The results of the analysis are presented in Table 14. Of the ten nondeterminant attributes, only one differs significantly across elderly mobility: wide aisles. The elderly who were driven by someone expressed a greater desire for wide aisles in the store. It is reasonable to assume that this group of elderly may rely more on walking aids (walkers, wheelchairs, etc.) due to physical limitations associated with aging that could more easily be maneuvered in wider aisles.

Self-reported Healthiness

Multiple Discriminant Analysis was used to test for differences across self-reported healthiness for the ten nondeterminant attributes. The results of the analysis are presented in Table 15. Of the ten nondeterminant attributes, only one differs significantly across elderly health: wide aisles. The elderly who reported their health as poor placed greater importance on the availability of wide aisles in the stores than any other health category. Again, this desire can be attributed to physical limitations that are commonly associated with aging.

Table 14. MDA Results of Differences in Nondeterminant Attributes Across Mobility Mode

Nondeterminant Attributes	Mean Determinance Scores By Mobility Mode[a]			F-Test Prob.	Scheffe Test: Differing Groups[b]
	Drive self (1)	Driven by Someone (2)	Walk (3)		
Consistent location of items for ease of finding items	12.8727	12.4242	11.1429	.182	NS
Wide aisles	**12.4409**	**12.7652**	**9.9286**	**.024**	**3 from 1, 2**
Restrooms in store	12.2864	12.6591	11.2857	.466	NS
Availability of advertised products	12.7455	12.4470	11.6429	.464	NS
Help in finding items in store	12.2682	12.3788	11.4286	.629	NS
Placement of items on lower shelves for ease of reach	11.9091	11.8182	12.1429	.949	NS
Food products suited to my dietary needs	11.9091	11.9773	10.2143	.211	NS
Package/container sizes suited to my age/household needs	12.4273	12.0303	10.9286	.250	NS
Accepts coupons	12.5955	12.8712	10.8571	.146	NS
Discounts for senior citizens	12.6318	12.5227	12.7857	.955	NS

Multivariate	Chi Square	Prob.	Percent Explained Variance
Function I	21.046	.394	70.1
Function II	6.353	.704	29.9
Function III			

[a] Scale ranges from low (1) to high (25) determinance.
[b] The mean difference is significant at the .05 level.

Table 15. MDA Results of Differences in Nondeterminant Attributes Across Health Status

Nondeterminant Attributes	Mean Determinance Scores By Health Status[a]					F-Test Prob.	Scheffe Test: Differing Groups[b]
	Excellent (1)	Very Good (2)	Good (3)	Fair (4)	Poor (5)		
Consistent location of items for ease of finding items	12.6071	13.1308	12.3882	12.5200	12.0000	.623	NS
Wide aisles	**13.1786**	**12.8692**	**12.2566**	**11.7467**	**17.7500**	**.008**	**4 from 5**
Restrooms in store	11.1071	12.8785	12.1513	12.5600	13.5000	.330	NS
Availability of advertised products	13.4643	12.9252	12.1711	12.6933	12.0000	.324	NS
Help in finding items in store	11.5357	12.7009	12.0395	12.4000	12.7500	.454	NS
Placement of items on lower shelves for ease of reach	10.5714	12.0814	11.7895	12.0533	16.2500	.073	NS
Food products suited to my dietary needs	12.1429	12.2336	11.7105	11.5200	12.7500	.645	NS
Package/container sizes suited to my age/household needs	12.8929	12.4673	11.9803	12.0667	13.500	.615	NS
Accepts coupons	12.6786	12.8785	12.6250	12.2133	13.5000	.795	NS
Discounts for senior citizens	11.3214	12.9065	12.8816	12.0933	12.0000	.237	NS

Multivariate	Chi Square	Prob.	Percent Explained Variance
Function I	50.191	.130	45.4
Function II	27.618	.431	30.1
Function III	12.488	.710	15.6
Function IV	4.581	.711	9.0

[a] Scale ranges from low (1) to high (25) determinance.
[b] The mean difference is significant at the .05 level.

CHAPTER V

SUMMARY, DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

The elderly population, persons 65 years or older, numbered 35 million in 2000, representing 12.4 percent of the U.S. population or about one in every eight Americans (Greenberg, 2002). By 2030, there will be approximately 70 million elderly persons, representing about 22 percent of the U.S. population or one in every five Americans (Johnson, 1995). In the next decade and beyond, significant demographic changes in the elderly population will offer new challenges for the U.S. food industry. Traditional grocery stores, such as supermarkets, smaller full-line foodstores, and convenience stores, will continue to compete with other nontraditional retail outlets that offer many food and nonfood products typically found in grocery stores. The traditional supermarket design will continue to be supplemented by warehouse stores, supercenters, and combination stores (Binkley & Connor, 1998). Based on these changes, both in the elderly population and the marketing environment for retail food sales, the focus of this research was to examine which store characteristics and services the elderly seek when making grocery purchases and what impacts their grocery store patronage decisions.

Summary of the Study

There were three objectives of this study. The first objective was to determine the store characteristics and services that are most important to the elderly consumer when making grocery purchases. The attributes that were ranked most important relate to the quality/price relationship. Elderly consumers desire quality products with attractive prices, in other words, value for their money.

Using the determinant attribute model developed by Lumpkin et al., the second objective of the study was to examine the determinant attributes used by the elderly consumer when choosing among the various grocery retailers. Eight of the eighteen store attributes were identified as determinant attributes for grocery store choice.

The third objective of the study was to examine the differences in determinant attributes based on primary store choice, age, activity level, and mobility, and self-reported healthiness. Multiple Discriminant Analysis (MDA) was used for this purpose. Few significant differences were found across the five independent variables.

In the remainder of this chapter, results of the study are summarized and conclusions are drawn. Furthermore, implications of the study to academicians and to retailers are offered and recommendations for further consideration of the topic are made.

Summary, Discussion, and Conclusions of Data Analysis

Section One

Respondents' Characteristics

A total of 366 respondents completed the questionnaire that examined the determinant attributes used by elderly consumers when choosing a primary store for grocery purchases. The majority of the respondents were female (82.5%). Respondents ranged in age from 65 to 104. The overall mean age of the sample was 76.94 years old. Over half of the respondents (52.5%) reported that they were active and that their health was good or very good, 41.5% and 29.2%, respectively. The majority of the respondents (60.1%) drove themselves to the grocery store. A combination store was the primary store choice for the majority (82.8%) of the respondents. Geographically, 39.9% lived in the eastern area of the United States (New Jersey, New York, Ohio, and Pennsylvania); 12.0% in the southeast area (Florida); 30.9% in the Great Lakes area (Illinois and Michigan); 6.5% in the southwest area (Texas) and 10.7% in the Pacific west area (California).

Section Two

Attribute Importance

The attributes that were most important to elderly consumers related to the quality/price relationship and finding satisfactory products (attractive prices, quality products, and ability to return unsatisfactory items). Elderly consumers

want quality products with attractive prices --- value for the money. They also want signs and price stickers that are easy to read. Additionally, discounts for senior citizens were important to elderly consumers; however acceptance of coupons was not as important. Surprisingly, elderly consumers ranked package size suited to their age and household needs and food products suited their dietary needs as the least important store attributes. Finally, the attributes dealing with physical aspects were rated relatively low in importance. While the elderly consumers rank help from store personnel as relatively high in importance, they do not seem to require special placement of food products due to physical limitations. These findings parallel the conclusions of Hare et al. (2001); Lambert (1979); and Mason and Bearden (1978, 1979).

Section Three

Determinant Attribute Model

The store services and store characteristics desired by the elderly consumer when shopping for groceries, and specifically the determinant attributes that affect store patronage decisions, were measured through calculating determinance scores for each of the 18 attributes. The higher the score, the more determinant that attribute is in the patronage decision. The determinance score was used to provide a relative ranking for each attribute. Eight store attributes were significantly greater than the grand mean (12.727078) and were considered to be determinant attributes. These eight determinant attributes are: easy to read signs/price stickers; helpful cashiers, baggers, other

store personnel; convenient/fast checkouts; quality products; attractive prices; store reputation; and ability to return unsatisfactory items. These findings are consistent with previous research (Arnold et al., 1983 and Lumpkin, et al.).

While store attributes that relate to the quality/price relationship were found to be determinant attributes, attributes dealing with physical aspects were rated relatively low in determinance. The elderly consumers do not seem to require physical attributes such as, wide aisles; restrooms in stores; consistent location of items; placement of items on lower shelves for ease of reach; and help in finding items in the store. These findings are consistent with previous research (Lambert, 1979). Additionally, elderly consumers do not seem to require food products that are suited to their age, household size, and/or dietary needs.

Section Four

Independent Variables

Multiple Discriminant Analysis (MDA) was used to determine if any of the attributes identified as being determinant differed across certain demographic characteristics. Specifically, primary store choice, age groups, health status, activity level, and mobility factors were examined for differences. Multiple Discriminant Analysis was performed on both the determinant and nondeterminant attributes.

Determinant Attributes

Five hypotheses were proposed that stated that differences exist between the determinant attributes used by elderly consumers for grocery store selection based on primary store choice, age, activity level, mobility, and self-reported healthiness. Data analysis results show that few differences were found. The desire for convenient/fast checkouts differs across age groups, with the older age group (age 75 and older) having a higher determinance score for this attribute. Slightly active elderly consumers, elderly consumers who were driven to the store by someone, and elderly consumers who rated their health as fair placed a higher importance on the availability of easy to read signs/price stickers than other groups of elderly consumers. Overall, there were no significant differences for determinant attributes that influence grocery store selection for any of the five independent variables (primary store choice, age, activity level, mobility, and self-reported healthiness). Therefore, none of the hypotheses were supported.

Nondeterminant Attributes

The determinance model identified ten nondeterminant store attributes. These nondeterminant store attributes include: consistent location of items for ease of finding items; wide aisles; restrooms in store; availability of advertised products; help in finding items in store; placement of items on lower shelves for ease of reach; food products suited to my dietary needs; package/container sizes suited to my age/household needs; accepts coupons; and discounts for senior citizens. Significant differences were found among the elderly for the

nondeterminant attribute *wide aisles*. The older age group (age 75 and older); those driven to the grocery store by someone; and those who reported their health as poor have a desire for availability of wide aisles in grocery stores. This desire can be attributed to the physical limitations that are commonly associated with aging and poor health. The older age group also expressed a desire for availability of advertised products and placement of items on lower shelves for ease of reach. One difference was identified as significantly different across primary store choice. Those who choose warehouse stores as their primary store expressed a desire for consistent location of items for ease of finding items. Overall, the nondeterminant attributes did not vary regardless of primary store choice, age, activity level, mobility, and self-reported health status.

Interpretation of these results are consistent with much of the previous research on the elderly consumers. The findings of this study could be generalized to the elderly consumer of grocery purchases.

Implications of the Study to Academicians

From a review of the elderly consumer literature, it is evident that findings from this research are generally consistent with previous findings. However, this present study did reveal that the elderly population surveyed was more homogeneous than indicated in previous research. Although segmentation of the elderly population is desirable, it may not be needed as much as previously indicated. The researcher cautions that some differences may have been masked based on the survey population that was used. Findings of this study

contribute to the academic research of elderly consumers and elderly consumer patronage behavior. This study also contributes to the academic research of multi-attribute analysis by extending the use of the determinance attribute model in a different product category.

Implication of the Study to Retailers

Information from this study can help retailers and marketers respond to the changing wants and needs of the elderly consumer and the competitive grocery environment. Retailers and marketers can use these results to develop grocery retail environments that extend beyond physical attributes, but also include grocery retail environments that focus on quality and service. Store reputation may be used as an indicator of quality price. Therefore, retailers should build their store reputations on quality, attractive prices, and a service-oriented environment rather than physical attributes to attract elderly customers. For example, retailers should provide quality food products that are reasonably priced. It is important that retailers also use large signs and easy-to-read price stickers throughout the store. Grocery stores should be staffed with helpful personnel at all levels (baggers, cashiers, and store managers).

Study results indicate that the majority of the elderly respondents primarily shopped at combination stores. Retailers and marketers can also use the study results to better understand elderly consumer choice among competing grocery retail formats in a metropolitan settings. Retailers and marketers also have access to updated information relative to the grocery store patronage decisions

of the elderly population and a base for additional exploration that will help marketers and retailers understand why the elderly choose a particular retail format for grocery purchases. Retailers and marketers should continue to examine the combination store format and its store attributes that attract elderly consumers to design additional grocery retail formats that meet the needs of the elderly consumer.

Limitations

The potential limitations that might have influenced the outcome of the study were:

1. Collection of data in some regions was limited and may limit the generalizability of the findings to these particular regions.
2. All study participants frequented a senior center and over 77% reported their physical activity level as very active or active. The use of a purposive sample may have omitted some potential study participants, such as slightly active or non active elderly consumers and those who do not frequent a senior center.
3. In completing the study questionnaire, the elderly respondents may not have been forthright in expressing needs they desire in a grocery environment.
4. In completing the study questionnaire, elderly respondents may have given what they considered to be socially acceptable responses rather than reports of their true feelings.

5. Accuracy of the data collection process is contingent on whether or not senior center directors who administered the questionnaire followed the guidelines presented by the researcher.

6. Available resources (time, money) placed constraints on the size, depth, and time frame of the study.

Care was taken throughout the research process to eliminate or at least minimize the stated and unforeseen limitations of the study.

Recommendations

This research utilized the determinance attribute model developed by Lumpkin et al. to validate its use in another product realm and to examine the determinant attributes used by the elderly consumer when choosing among the various grocery retailers. Additionally, this research examined whether determinant attributes vary among primary store choice, sub-age groups, activity level, elderly mobility, and self-reported healthiness. Data analysis results show that no significant differences exist among the independent variables for elderly consumers' determinant attributes for grocery store selection. Therefore, the following recommendations are offered.

1. Conduct replication studies that include additional respondents from regions with minimal respondents to this study so that more generalized statements can be made about the findings of this study.

2. Investigate the effect of residency (regional) on determinant attributes for grocery store selection.

3. Investigate the effect of income on determinant attributes for grocery store selection.

4. Investigate the effect of cognitive age on determinant attributes for grocery store selection.

5. Conduct replication studies that include more male respondents and examine the effects of gender differences.

6. Conduct replication studies that include baby boomers to further expand the body of literature on upcoming consumers age 65 and older.

7. Refine the survey instrument to include additional store services and characteristics that can be measured as determinant attributes for grocery store patronage.

8. Examine what store characteristics and services are determinant attributes for a specific retail grocery format, in particular, combination stores.

The use of the determinance attribute model in the grocery retail realm provided valuable information for grocery retailers and marketers for meeting the needs of elderly consumers. While this study offers some generalizations, further research should be conducted concerning the field of elderly grocery store patronage behavior.

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APPENDICES

APPENDIX A

PILOT STUDY SURVEY

GROCERY STORE SERVICES AND CHARACTERISTICS SURVEY

You are invited to participate in a University of Tennessee research study. The purpose of this study is to examine the store services and characteristics that are important to elderly consumers when purchasing groceries and how these services and characteristics affect store choice. The knowledge gained from this study will contribute to the development of grocery retail formats that meet the needs of elderly consumers.

This survey is designed to take only a few minutes of your time. It is very important that you answer every item on the questionnaire. Please be assured that your responses to this survey are completely confidential. The completion of this questionnaire constitutes your consent to participate in this study. For participating in this study, you will receive a University of Tennessee souvenir ink pen.

If you have questions or need further clarification, feel free to contact Angela Radford Lewis, the principal investigator, at (931) 486-1039 or by email at aradford@mtsu.edu.

THANK YOU FOR YOUR PARTICIPATION

1. When buying groceries how important are the following store characteristics or store services? (Circle only one number for each item.)

	Not Important	Slightly Important	Moderately Important	Very Important	Extremely Important
A. Convenience and Location Aspects:					
a. Delivery to home	1	2	3	4	5
b. Phone in orders	1	2	3	4	5
c. Transportation to store	1	2	3	4	5
d. Convenient parking	1	2	3	4	5
e. Store location close to home	1	2	3	4	5
f. Located near a variety of stores	1	2	3	4	5
g. Convenient entrances and exits	1	2	3	4	5
h. Availability of other services in the store (bank, pharmacy, post office, etc.)	1	2	3	4	5
B. Physical Environment Characteristics:					
a. Seating area in store	1	2	3	4	5
b. Comfortable physical environment (temperature, lighting, etc.)	1	2	3	4	5
c. Consistent location of items for ease of finding items	1	2	3	4	5
d. Small store for easy walking	1	2	3	4	5
e. Wide aisles	1	2	3	4	5

f. Limited variety so items can be found easily	1	2	3	4	5
g. Placement of items on lower shelves	1	2	3	4	5
h. Restrooms in store	1	2	3	4	5
C. In-store Services/ Characteristics:					
a. Variety of brands	1	2	3	4	5
b. Availability of advertised products	1	2	3	4	5
c. Easy to read signs/ price stickers	1	2	3	4	5
d. Helpful cashiers, baggers, other store personnel	1	2	3	4	5
e. Convenient/fast checkouts	1	2	3	4	5
f. Package carryout	1	2	3	4	5
g. Help in finding items in stores	1	2	3	4	5
h. Food products suited to my dietary needs	1	2	3	4	5
i. Package/container sizes suited to my age/ household needs	1	2	3	4	5
j. Prepared foods available	1	2	3	4	5
D. Quality and Price Characteristics:					
a. Quality products	1	2	3	4	5
b. Attractive prices	1	2	3	4	5
c. Store reputation	1	2	3	4	5

d. Well-known labels/ brands	1	2	3	4	5
e. Accepts coupons	1	2	3	4	5
f. Provides a store discount card	1	2	3	4	5
g. Opportunity to support local schools and/or churches through your purchases	1	2	3	4	5
h. Sales/Marked-down prices	1	2	3	4	5
i. Ability to return unsatisfactory items	1	2	3	4	5
j. Discounts for senior citizens	1	2	3	4	5

2. Does the store you shop at <u>most</u> for groceries have the following store characteristics or store services? (Circle only one number for each item.)

	Not at all	Sometimes	Very Much So
A. Convenience and Location Aspects:			
a. Delivery to home	1	2	3
b. Phone in orders	1	2	3
c. Transportation to store	1	2	3
d. Convenient parking	1	2	3
e. Store location close to home	1	2	3
f. Located near a variety of stores	1	2	3
g. Convenient entrances and exits	1	2	3
h. Availability of other services in the store (bank, pharmacy, post office, etc.)	1	2	3

B. Physical Environment Characteristics:

a. Seating area in store	1	2	3
b. Comfortable physical environment (temperature, lighting, etc.)	1	2	3
c. Consistent location of items for ease of finding items	1	2	3
d. Small store for easy walking	1	2	3
e. Wide aisles	1	2	3
f. Limited variety so items can be found easily	1	2	3
g. Placement of items on lower shelves	1	2	3
h. Restrooms in store	1	2	3

C. In-store Services/ Characteristics:

a. Variety of brands	1	2	3
b. Availability of advertised products	1	2	3
c. Easy to read signs/price stickers	1	2	3
d. Helpful cashiers, baggers, other store personnel	1	2	3
e. Convenient/fast checkouts	1	2	3
f. Package carryout	1	2	3
g. Help in finding items in store	1	2	3
h. Food products suited to my dietary needs	1	2	3
i. Package/container sizes suited to my age/ household needs	1	2	3
j. Prepared foods available	1	2	3

D. Quality and Price Characteristics:

a. Quality products	1	2	3

b. Attractive prices	1	2	3
c. Store reputation	1	2	3
d. Well-known labels/brands	1	2	3
e. Accepts coupons	1	2	3
f. Provides a store discount card	1	2	3
g. Opportunity to support local schools and/or churches through your purchases	1	2	3
h. Sales/Marked-down prices	1	2	3
i. Ability to return unsatisfactory items	1	2	3
j. Discounts for senior citizens	1	2	3

3. Do stores in general that sell groceries have the following store characteristics or store services? (Circle only one number for each item.)

	Not at all	Sometimes	Very Much So
A. Convenience and Location Aspects:			
a. Delivery to home	1	2	3
b. Phone in orders	1	2	3
c. Transportation to store	1	2	3
d. Convenient parking	1	2	3
e. Store location close to home	1	2	3
f. Located near a variety of stores	1	2	3
g. Convenient entrances and exits	1	2	3
h. Availability of other services in the store (bank, pharmacy, post office, etc.)	1	2	3
B. Physical Environment Characteristics:			
a. Seating area in store	1	2	3
b. Comfortable physical environment (temperature, lighting, etc.)	1	2	3

c. Consistent location of items for ease of finding items	1	2	3
d. Small store for easy walking	1	2	3
e. Wide aisles	1	2	3
f. Limited variety so items can be found easily	1	2	3
g. Placement of items on lower shelves	1	2	3
h. Restrooms in store	1	2	3

C. In-store Services/ Characteristics:

a. Variety of brands	1	2	3
b. Availability of advertised products	1	2	3
c. Easy to read signs/price stickers	1	2	3
d. Helpful cashiers, baggers, other store personnel	1	2	3
e. Convenient/fast checkouts	1	2	3
f. Package carryout	1	2	3
g. Help in finding items in store	1	2	3
h. Food products suited to my dietary needs	1	2	3
i. Package/container sizes suited to my age/ household needs	1	2	3
j. Prepared foods available	1	2	3

D. Quality and Price Characteristics:

a. Quality products	1	2	3
b. Attractive prices	1	2	3
c. Store reputation	1	2	3
d. Well-known labels/brands	1	2	3
e. Accepts coupons	1	2	3

f. Provides a store discount card	1	2	3
g. Opportunity to support local schools and/or churches through your purchases	1	2	3
h. Sales/Marked-down prices	1	2	3
i. Ability to return unsatisfactory items	1	2	3
j. Discounts for senior citizens	1	2	3

4. What is the name of the store that you shop at most for groceries? (write in name)_____

5. In what year were you born? _____ (write in year)

6. What is your gender? (check one)

_____Male _____Female

7. What is your activity level? (check one)

_____Very active

_____Active

_____Very active

_____Active

_____Slightly active

_____Not active at all

8. How is your overall health? (check one)

_____Excellent

_____Very good

_____Good

_____Fair

_____Poor

9. How do you get to the grocery store? (check one)

_____Drive myself

_____Driven by someone (family member, friend, public transportation, etc.)

_____Walk

THANK YOU FOR YOUR PARTICIPATION

APPENDIX B

REVISED QUESTIONNAIRE

GROCERY STORE CHOICE SURVEY

You are invited to participate in a University of Tennessee research study. The purpose of this study is to examine the store services and characteristics that are important to elderly consumers when purchasing groceries and how these services and characteristics affect store choice. The knowledge gained from this study will contribute to the development of grocery retail formats that meet the needs of elderly consumers.

This survey is designed to take only a few minutes of your time. It is very important that you answer every item on the questionnaire. Please be assured that your responses to this survey are completely confidential. The completion of this questionnaire constitutes your consent to participate in this study. For participating in this study, you will receive a University of Tennessee souvenir ink pen.

If you have questions or need further clarification, feel free to contact Angela Radford Lewis, the principal investigator, at (931) 486-1039 or by email at aradford@mtsu.edu.

THANK YOU FOR YOUR PARTICIPATION

1. When buying groceries how important are the following store characteristics or store services? (Circle only one number for each item.)

	Not Important	Slightly Important	Moderately Important	Very Important	Extremely Important
a. Consistent location of finding items	1	2	3	4	5
b. Wide aisles	1	2	3	4	5
c. Restrooms in store	1	2	3	4	5
d. Availability of advertised products	1	2	3	4	5
e. Easy to read signs/ price stickers	1	2	3	4	5
f. Helpful cashiers, baggers, other store personnel	1	2	3	4	5
g. Convenient/fast checkouts	1	2	3	4	5
h. Help in finding items in store	1	2	3	4	5
i. Placement of items on lower shelves for ease of reach	1	2	3	4	5
j. Food products suited to my dietary needs	1	2	3	4	5
k. Package/container sizes suited to my age/ household needs	1	2	3	4	5
l. Quality products	1	2	3	4	5
m. Attractive prices	1	2	3	4	5
n. Store reputation	1	2	3	4	5
o. Accepts coupons	1	2	3	4	5
p. Sales/Marked-down prices	1	2	3	4	5
q. Ability to return unsatisfactory items	1	2	3	4	5

r. Discounts for senior citizens	1	2	3	4	5

2. Does the store you shop at <u>most</u> for groceries have the following store characteristics or store services? (Circle only one number for each item.)

	Not at all	Sometimes	Very Much So
a. Consistent location of finding items	1	2	3
b. Wide aisles	1	2	3
c. Restrooms in store	1	2	3
d. Availability of advertised products	1	2	3
e. Easy to read signs/price stickers	1	2	3
f. Helpful cashiers, baggers, other store personnel	1	2	3
g. Convenient/fast checkouts	1	2	3
h. Help in finding items in store	1	2	3
i. Placement of items on lower shelves for ease of reach	1	2	3
j. Food products suited to my dietary needs	1	2	3
k. Package/container sizes suited to my age/ household needs	1	2	3
l. Quality products	1	2	3
m. Attractive prices	1	2	3
n. Store reputation	1	2	3
o. Accepts coupons	1	2	3
p. Sales/Marked-down prices	1	2	3
q. Ability to return unsatisfactory items	1	2	3
r. Discounts for senior citizens	1	2	3

3. Do stores in general that sell groceries have the following store characteristics or store services? (Circle only one number for each item.)

	Not at all	Sometimes	Very Much So
a. Consistent location of finding items	1	2	3
b. Wide aisles	1	2	3
c. Restrooms in store	1	2	3
d. Availability of advertised products	1	2	3
e. Easy to read signs/price stickers	1	2	3
f. Helpful cashiers, baggers, other store personnel	1	2	3
g. Convenient/fast checkouts	1	2	3
h. Help in finding items in store	1	2	3
i. Placement of items on lower shelves for ease of reach	1	2	3
j. Food products suited to my dietary needs	1	2	3
k. Package/container sizes suited to my age/ household needs	1	2	3
l. Quality products	1	2	3
m. Attractive prices	1	2	3
n. Store reputation	1	2	3
o. Accepts coupons	1	2	3
p. Sales/Marked-down prices	1	2	3
q. Ability to return unsatisfactory items	1	2	3
r. Discounts for senior citizens	1	2	3

4. **What is the name of the store that you shop at most for groceries? (write in name)**_____

5. **In what year were you born?** _____ **(write in year)**

6. **What is your gender? (check one)**

_____Male _____Female

7. **What is your activity level? (check one)**

_____Very active

_____Active

_____Slightly active

_____Not active at all

8. **How is your overall health? (check one)**

_____Excellent

_____Very good

_____Good

_____Fair

_____Poor

9. **How do you get to the grocery store? (check one)**

_____Drive myself

_____Driven by someone (family member, friend, public transportation, etc.)

_____Walk

THANK YOU FOR YOUR PARTICIPATION

APPENDIX C

Example of Study Letter Mailed to Identify Study Participants

March 21, 2003

As a graduate student at The University of Tennessee – Knoxville, I am in the process of conducting my dissertation research. My research project is designed to determine the store services and store characteristics that the elderly consumer (age 65 and older) seeks when shopping for grocery items. The elderly who participate at your senior center are invited to voluntarily participate in this research study.

There are no foreseeable risks to the study participants. Anonymity will be protected by not recording names of participants on any documents.

There will be no immediate benefits to participants. However, the knowledge gained from this study will be a significant benefit by contributing to the development of knowledge in the field of grocery retail and specifically in designing grocery retail formats that meet the needs of the elderly consumer.

The information in the study records will be kept confidential. Data will be stored securely and will be made available only to me, the principal investigator and my faculty advisor unless you specifically give permission in writing to do otherwise. No reference will be made in oral or written reports which could link you, your senior center or the elderly participants to the study.

If you agree to have your senior center participate in this study, please put the second page of this letter on your official letterhead, print and sign your name and return to me ASAP in the enclosed self-addressed, stamped envelope. I appreciate your cooperation with this project.

If you have questions or need further clarification, feel free to contact me at my office at (615) 904-8340, at home (931) 486-1039 or by email at aradford@mtsu.edu.

Thank you,

Angela Radford Lewis
UTK Graduate Student

This senior center agrees to participate in the collection of survey data for the dissertation research project that examines the store characteristics and services sought by the elderly when shopping for groceries. By agreeing to participate, as the senior center director, I will distribute and collect all surveys. I will send all completed surveys back to the principal investigator, Angela Radford Lewis in the self-addressed, stamped envelope that will be provided.

_____

Print Name of Senior Center Director

_____

Signature of Senior Center Director

_____

Date

APPENDIX D

Example of Orientation Letter Mailed to Study Participants

May 19, 2003

Senior Center Director's Name
Senior Center's Name
Address
City, State Zip Code

Dear Senior Center Director:

I am excited that the (senior center's name) seniors will be participating in the grocery store services and characteristics research study at the University of Tennessee. The opinions of your elderly participants are valued and will provide tremendous insight into this project.

Enclosed are questionnaires for you to distribute to those who voluntarily agree to participate. I have also enclosed University of Tennessee souvenir ink pens for you and each survey participant. Please collect all completed surveys and return to me in the enclosed, stamped envelope within the next two weeks. Upon completion of this project, survey results will be mailed to your senior center.

If you have questions or need further clarification, feel free to contact me at (931) 486-1039 or by email at aradford@mtsu.edu. Thank you for your time and assistance with this research project.

Sincerely,

Angela Radford Lewis
Doctoral Candidate
The University of Tennessee

Enclosures

APPENDIX E

Example of Follow-up Response Memo

TO: SENIOR CENTER DIRECTOR'S NAME

FROM: ANGELA RADFORD LEWIS

SUBJECT: SURVEYS

DATE: 8/14/2003

I certainly appreciate you agreeing to have your senior center participate in my research study. As of this mailing, I have not yet received the completed surveys from your center. If you have recently returned the surveys to me, please disregard this memo and accept my appreciation for your cooperation. If you have not returned the surveys, please have those surveys completed and returned to me by June 30th so that I might complete the analysis of the survey results. I certainly appreciate the time and effort that you and the seniors that frequent your center have put forth in helping me complete this research project. If you have questions or need additional information, feel free to contact me at (931) 486-1039 or at aradford@mtsu.edu. All completed surveys should be returned to Angela Radford Lewis, 2810 Canary Court, Columbia, TN 38401.

APPENDIX F

Example of Thank You Letter Mailed to Study Participants

July 10, 2003

Senior Center Director's Name
Senior Center's Name
Address
City, State Zip Code

Dear Senior Center Director:

Thank you and the (senior center's name) senior citizens for participating in the grocery store services and characteristics research study at the University of Tennessee. The opinions of your elderly participants were valuable and will provide tremendous insight into this project.

In the next few months, I will be forwarding to you the results of this study. I appreciate your assistance in this endeavor and thank you for your time and support.

Sincerely,

Angela Radford Lewis
Doctoral Candidate
The University of Tennessee

VITA

Angela Armstrong Radford Lewis is a native of Columbia, TN. She received a B.S. degree in Home Economics with an emphasis in Consumer Services in 1984 and a B.S. degree in Vocational Home Economics Education in 1987 from Middle Tennessee State University. After teaching secondary home economics for six and one-half years in Alabama and Mississippi, Angela returned to Middle Tennessee State University to complete a graduate degree. She received a Master's of Vocational Technical Education degree in 1996. She received a Ph.D. degree in Human Ecology with a concentration in Retail and Consumer Sciences from The University of Tennessee, Knoxville in 2003.

Angela worked for the Tennessee State Department of Education, Vocational Education Division as the Education Consultant for Family and Consumer Sciences and as the state advisor for the Tennessee Association of Family, Career and Community Leaders of America from 1996 to 1998. In 1998, Angela became an instructor in the Department of Human Sciences at Middle Tennessee State University.

Angela is currently an assistant professor in the Department of Human Sciences, College of Education and Behavioral Science at Middle Tennessee State University. She teaches in the Family and Consumer Studies program area.

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