THE IMPACT OF PERCEIVED QUALITY ON ASSISTED LIVING RESIDENTS' SATISFACTION WITH THEIR DINING EXPERIENCE

by

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Abstract

The purposes of this study were to explore factors associated with residents' dining experience in assisted living facilities and to investigate the influence that these factors had on perceived quality and residents' satisfaction with their dining experience. Food quality, service quality, mealtime customization, and dining room environment were the four constructs explored. Focus groups were conducted with residents of three assisted living facilities to determine attributes of the constructs that were important to them. A total of 22 residents participated in the three focus groups. A questionnaire developed by Huang was revised to include measurement items identified in the focus groups. The questionnaire was distributed to residents of 16 randomly selected assisted living facilities within a 110 mile radius of the research institution. Of the 492 residents in 16 facilities, 246 completed the questionnaire for a response rate of 50%. Residents evaluated the attributes on a 5-point likert scale (1-strongly disagree; 5-strongly agree). Service quality (4.03) and dining room environment (3.97) attributes were rated significantly higher than food quality (3.64) and customization attributes (3.42). Resident satisfaction also was evaluated on a 5-point scale (1-very dissatisfied; 5-very satisfied). Residents were satisfied with the overall dining experience (3.94) and the overall facility (3.97). Residents were less satisfied with food served (3.67) or the amount of choices they had at meals (3.58). Residents were satisfied with services (3.95) and the dining room atmosphere (3.98). Satisfaction with services and the dining room atmosphere were significantly higher than food served and amount of choices at mealtimes. Residents' perceptions of food quality, service quality, level of customization, and dining room environment had a positive influence on their satisfaction with the overall dining experience. Residents' perceptions of food quality had a positive influence on satisfaction with the food served, service quality impacted satisfaction with services, level of customization effected satisfaction with the amount of choices, and dining room environment influenced satisfaction with the dining room atmosphere. Administrators, foodservice directors, and dietitians employed in assisted living facilities can use the

results to improve the dining experience for residents and ultimately improve residents' quality of life.

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Dedication

I dedicate my thesis to my daughter, Riana Brynn Howells. You were with me through this entire experience and motivated me to strive for excellence. I love you.

CHAPTER 1 - INTRODUCTION

The elderly population is expected to increase in the United States in the next 30 to 40 years due to the baby-boom generation reaching the age of 65 years (Administration on Aging [AOA], 2004a). By 2030, the elderly population is predicted to increase from 12.4% of the population to 20% of the population equaling 71.5 million Americans (AOA, 2004b). Life expectancy also is predicted to increase significantly as the population ages (AOA, 2004a). An increase in life expectancy may increase the need for long-term care services for the elderly population (AOA, 2004a). Twelve million Americans are expected to need long-term care services by the year 2020 (American Association of Homes and Services for the Aging [AAHSA], 2005).

Many choices are available for long-term care including nursing homes, continuing care retirement communities, and assisted living facilities. Assisted living facilities are becoming more popular because they offer a wide variety of services and health care assistance, while allowing residents to maintain a level of independence. Also, assisted living facilities are a less costly health care alternative compared with nursing homes (The Assisted Living Federation of America [ALFA], 2006). Currently there are approximately a million Americans living in assisted living facilities (ALFA, 2006). Consumer demand for assisted living facilities is expected to increase as the elderly population expands and ages (The National Center for Assisted Living, [NCAL], 2001).

Mealtimes are important to residents of long-term care facilities. This importance is illustrated by the residents' desire to plan their day around mealtimes (Beck, 1981). Quality of life also is important to residents of long-term care facilities. Research has shown that risk for malnutrition and food enjoyment affect quality of life among long-term care residents (Vailas, Nitzke, Becker, & Gast, 1998). West, Ouellet, and Ouellette (2003) suggested that the high frequency of malnutrition among residents of long-term care facilities indicated a need for researching aspects of the dining experience that are important to residents and creating the highest level of resident satisfaction. Kofod and Birkemose (2004) emphasized that improving the dining experience in long-term care has received little interest. By researching the meaning of the dining experience to long-term care residents, management of these facilities could

implement improvement strategies to increase the quality of life for the residents (Crogan, Evans, Severtsen, & Shultz, 2004). Chao and Dwyer (2004) suggested that the food and nutrition services in long-term care facilities are important aspects when individuals are choosing to reside in a facility. Improvements in the dining experience, therefore, could increase the likelihood of more elderly individuals choosing a specific long-term care facility over others.

As the need for long-term care facilities increases, competition among these facilities will grow. As competition increases, quality and customer satisfaction become more important (Hutton & Richardson, 1995). Parasuraman, Zeithaml, and Berry (1988) stated the most appropriate method of evaluating service quality is to measure customers' quality perceptions of the service. Customer satisfaction is achieved when customer service quality performance meet or exceed the expectations of the service (Bitner, 1990). Resident satisfaction with the dining experience in long-term care may affect their overall satisfaction with the facility. Therefore, it is important to improve the dining experience in long-term care facilities. Customer satisfaction is an essential component of the quality of life of long-term residents (Paulus & Jans, 2005). It can also influence current residents' willingness to recommend specific facilities to potential residents (Lowe, Lucas, Castle, Robinson, & Crystal, 2003).

When evaluating resident satisfaction with the dining experience, one of the most important factors to assess is perceived food quality (Crogan, Evans, & Velasquez, 2004). A variety of aspects have been used to evaluate residents' quality perceptions of food. Although perceived food quality is important when measuring customer satisfaction with the dining experience, there are other constructs that affect resident satisfaction. Perceived quality of service among both the staff that serve the meal in the dining rooms and the foodservice staff responsible for planning and preparing the meal is important to residents in long-term care facilities. Customization of the dining experience, or the ability of residents to have mealtime choices regarding mealtimes, has been shown to be important in determining residents' satisfaction with the dining experience. Chang (2000) found that customer satisfaction was significantly impacted by the organizations' physical environment. Thus, it is important for administrators and researchers to determine which components of the dining experience are most important to residents of long-term care facilities. Improving these components may increase residents' perception of quality and resident satisfaction, thus possibly improving the quality of life of long-term care residents.

Statement of Problems

An obstacle for long-term care administrators is offering sufficient nutrition to elderly residents (Kayser-Jones, 1996). Roberts and Durnbaugh (2002) suggested that when residents enjoy their dining experiences, they will increase their food intake and gain weight. Quality food was identified as being very important for a positive mealtime experience (Evans, Crogan, & Shultz, 2003), and research has shown that quality food and service delivery greatly enhance health, happiness, and quality of life in long-term care residents (Brooks, 1994; Evans et al., 2003; Vailas et al., 1998). Evans, Crogan, and Shultz (2005) suggested that long-term care residents were often dissatisfied with the food. Thus, resident expectations of the dining experience in many long-term care facilities are not being met. Administrators of long-term care facilities may find it difficult to correct this problem if they do not understand what components of the dining experience are important to their residents.

Food and foodservice experiences may have a greater impact on long-term care residents compared with hospital patients because their stay is longer and mealtimes become part of their daily lives (O'Hara, Harper, Kangas, Dubeau, Borsutzky, & Lemire, 1997). When food is served that residents of long-term care facilities do not like, they are dissatisfied with their care in general (Kayser-Jones, 1996). Thus, the dining experience may affect overall resident's satisfaction with the facility, making it important for facility administrators to understand the expectations of their residents. By understanding the expectations of their residents, administrators can implement improvement strategies that may increase resident satisfaction and ultimately resident quality of life. Therefore, administrators should identify factors of the dining experience in assisted living facilities that are important to the residents, and evaluate how these factors affect perceived quality and resident satisfaction of the dining experience.

A review of literature revealed research has been conducted in nursing homes to investigate affects of certain aspects during the dining experience on special populations, such as residents with dementia and dysphagia. Other research has been conducted in nursing homes that determined how aspects of the dining experience impact nutritional status and food intake among residents. Although a number of studies have been conducted with the foodservice in nursing homes, limited research has been conducted with assisted living facility residents to determine their perceived quality and satisfaction with the entire dining experience.

Purpose

The purposes of this study were to explore factors associated with residents' dining experience in assisted living facilities and to investigate the influence that these factors had on perceived quality and residents' satisfaction with their dining experience. The importance of four factors of the dining experience: food quality, service quality, customization, and dining environment were assessed by assisted living residents. Hypotheses were developed by examining relationships of the constructs following an analysis of current literature.

Objectives

The objectives of this research were:

1. To determine specific attributes of food, service, resident choice, and environment that affect assisting living residents' quality perceptions of their dining experiences.
2. To ascertain the affect of assisted living residents' quality perceptions of food, service, resident choice, and environment on resident satisfaction with the dining experience.
3. To investigate the relationship between residents' perceptions of quality and residents' satisfaction regarding the dining experience in assisted living facilities.
4. To examine differences in residents' perceptions of quality and satisfaction based on selected demographic variables.

Hypotheses

The following hypotheses were developed to accomplish the objectives of this study:

H1: Residents' perception of food quality has a positive influence on residents' satisfaction with the dining experience.

H2: Residents' perception of service quality has a positive influence on residents' satisfaction with the dining experience.

H3: Residents' perception of the level of mealtime customization has a significant influence on residents' satisfaction with the dining experience.

H4: Residents' perception of the quality of servicescape has a positive influence on residents' satisfaction with the dining experience.

Significance of Research

This study is significant to both long-term care operations and research in the field of aging. Dining experiences can affect a resident's food intake, thus affecting the resident's nutritional status. Nutritional status and enjoyment of the dining experience may also affect the resident's quality of life. Therefore, determining components of the dining experience that affect residents' quality perceptions and satisfaction may aid assisted living facility administrators, managers, and dietitians to determine areas that need improvement within the dining experience, thus, assisting in improving both nutritional status and quality of life for the facilities' residents. Also, a thorough review of literature showed that there was limited research regarding customer satisfaction with the foodservice department among assisted living residents. Thus, this study can be used as a guide for other researchers when investigating similar areas with the elderly population.

Definition of Terms

Assisted Living Facility. The National Center for Assisted Living (2001) defined assisted living as "a long term care alternative for seniors who need more assistance than is available in a retirement community, but who do not require the heavy medical and nursing care provided in a nursing facility" (http://www.ncal.org/about/allcd.pdf).

Continuing Care Retirement Community. The Assisted Living Federation of America (2006) defined continuing care retirement communities as "a community that offers several levels of assistance, including independent living, assisted living, and nursing home care…which offers a continuum of housing, services and health care system, commonly all on one campus or site" (http://www.alfa.org/i4a/pages/index.cfm?pageid=3285).

Customer Satisfaction. Oliver (1997) described customer satisfaction as "the customer's judgment that the product or service features, or the product or service itself, provided a pleasurable level of consumption-related fulfillment" (p. 13).

Customization. Dube, Trudeau, and Belanger (1994) described customization as "possibility to choose healthful meals, clarity of menu presentation, portion size, conformity with menu choices, instruction about menu choices, and flexibility in service hours" (p. 397). This study defined customization as the ability of the residents to choose food they like, their dining location, their portion sizes, service hours of their dining experience, and their ability to order food from businesses outside the facility.

Elderly Population. The Administration on Aging (2004b) defined the elderly population as those aged 65 years or older.

Independent Living. The Assisted Living Federation of America (2006) defined independent living as a "residential setting for elderly or senior adults that may or may not provide hospitality or supportive services" (http://www.alfa.org/i4a/pages/index.cfm?pageid=3285).

Long-Term Care. Long-term care is a generic term for a variety of housing for aging adults that includes nursing homes, assisted living facilities, independent living facilities, continuing care retirement communities, and aging at home with home health care.

Nursing Home. The Assisted Living Federation of America (2006) defined a nursing home as a facility that provides 24-hour skilled care for patients that require assistance with most or all of activities of daily living.

Perceived Service Quality. Parasuraman, Zeithaml, and Berry (1988) described perceived service quality as "the degree and direction of discrepancy between consumers' perceptions and expectations" (p.17).

Service Quality. In reference to this study, service quality is defined as the process of delivering meals to the residents.

Servicescape. Bitner (1992) suggested that servicescape has three components: ambient conditions, spatial layout and functionality, and signs, symbols, and artifacts. These components are defined below.

> **Ambient Conditions.** Bitner (1992) defined ambient conditions as "background characteristics of the environment such as temperature, lighting, noise, music, and scent" (p. 66).
>
> **Spatial Layout.** Bitner (1992) described spatial layout as "the ways in which machinery, equipment, and furnishings are arranged, the size and shape of those items, and the spatial relationships among them" (p. 66).
>
> **Functionality.** Bitner (1992) referred to functionality as "the ability of the same items to facilitate performance and the accomplishment of goals" (p. 66).
>
> **Signs, Symbols, and Artifacts.** Bitner (1992) referred to signs, symbols, and artifacts as communication signals to the facility's patrons.

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CHAPTER 2 - REVIEW OF LITERATURE

Elderly Population

Demographics

In 2003, the elderly population, defined as those aged 65 years or older, accounted for 12.4% of the population in the United States, or 35.9 million Americans (Administration on Aging [AOA], 2004a). The percentage of older Americans has tripled since 1900; an increase of 9.5% was experienced between 1993 and 2004 (AOA, 2004a). According to the AOA (2004a), life expectancy increased approximately 30 years from 1900 to 2002. Life expectancy in 2002 was 77.3 years. The U.S. Census Bureau (2001) reported that the elderly population aged 85 years or older grew more rapidly during the 1990s than any other segment of the elderly population. This age group increased 38% during the 1990s. The number of Americans who are over 100 years old in the U.S. has increased 36% since 1990 (AOA, 2004a).

According to the American Association of Homes and Services for the Aging [AAHSA] (2005), assisted living facilities house more than a million Americans. In 2000, 4.5% of the elderly population lived in nursing homes; this percentage increases with age (AOA, 2004a). For example, about 55% of individuals who are 85 years or older require long-term care housing (AAHSA, 2005).

In the next 30 to 40 years, the elderly population and the proportion of this age group is expected to grow due to baby boom generation reaching age 65 (AOA, 2004b). By 2030, the elderly population is predicted to double and increase from 13% in 2004 to 20% of the total U. S. population (AOA, 2004b). The elderly group with the highest growth rate will be those aged 85 years or older. By 2050, this group is predicted to compose 24% of the elderly population, and 5% of the American population, or 19 million people in the United States (U.S. Census Bureau, 1995). According the AOA (2004b), life expectancy is predicted to continue to increase.

As people live longer, the likelihood of them developing debilitating conditions increases, as does their need for assistance with activities of daily living or being dependent on others (U.S. Census Bureau, 1995). According to the American Association of Retired Persons

[AARP] (2003), long-term care services are expected to increase dramatically by 2020. Long-term care services will be required by approximately 12 million Americans by 2020 (AAHSA, 2005).

Assisted Living Facilities

A moderately new housing alternative becoming more popular with the elderly population is the assisted living facility. The number of assisted living units is increasing in the United States (Chao & Dwyer, 2004). Assisted living popularity is increasing because this option provides personal care, security, and resident independence and privacy (National Center for Assisted Living [NCAL], 2001). Assisted living is defined differently by researchers, states, and accrediting organizations (AARP, 2004). According to the NCAL (2001), "assisted living is a long term care alternative for seniors who need more assistance than is available in a retirement community, but who do not require the heavy medical and nursing care provided in a nursing facility (p. 1)." Services vary from facility to facility, but some of the typical services of assisted living include but are not limited to three meals a day, transportation, assistance with activities of daily living (ADL), access to health and medical services, housekeeping and laundry, emergency call systems, and recreational activities (Assisted Living Federation of America [ALFA], 2006). ADLs include bathing, dressing, transferring, toileting, and eating (NCAL, 2001). According to the NCAL (2001), assisted living residents need assistance with an average of 2.25 ADLs, whereas nursing home residents required assistance with 3.75 ADLs. Also, 19% of assisted living residents require no assistance with ADLs (NCAL, 2001).

According to the ALFA (2006), there are approximately 20,000 assisted living facilities in the United States with most facilities containing 25 to 120 units. These facilities house over a million Americans. On the average, 69% of assisted living facility residents are female aged 75 to 85 years old who need assistance with personal care activities such as bathing, dressing, transferring, toileting, and eating (NCAL, 2001). The NCAL estimate that 81% of assisted living residents need assistance with one or more personal care activities (2001).

Differences in assisted living residences create costs that vary widely. ALFA (2006) estimated that assisted living facilities charge $15 to $200 per day, or an average monthly rate of $1873 (NCAL, 2001), and are generally more affordable than nursing homes (ALFA, 2006).

Most assisted living residents personally pay their monthly fee rather than relying on insurance, Medicare, or Medicaid (NCAL, 2001).

No federal regulations exist for assisted living facilities; thus, individual states determine how these facilities are governed resulting in varying regulations for licensing and quality standards (AARP, 2004). An estimated 99% of assisted living facilities are "licensed or certified by the states in which they operate" (NCAL, 2001). Quality service among assisted living residences is often established by the increasing competition in the long-term care sector (NCAL, 2001).

Health and Nutrition

One of the greatest obstacles in long-term care is offering sufficient nutrition to the elderly (Kayser-Jones, 1996). Nutritional requirements of the elderly are usually increased due to advanced age and chronic illnesses and conditions (Castellanos, 2004). Malnutrition often leads to institutionalization, and nursing home residents often experience inadequate nutrition (Morley & Silver, 1995). Under-nutrition increases the risk for several conditions including weight loss, vitamin and mineral deficiencies (Castellanos, 2004), dehydration (Kayser-Jones, 2000), a higher percentage of infections, a weakened immune system, and higher incidences of pressure ulcers (Kayser-Jones, 1996). Malnutrition also contributes to an increased risk of morbidity and mortality in the elderly (Lengyel, Zello, Smith, & Whiting, 2003). Proper nutrition is important for physical health (Chao & Dwyer, 2004), extending independence (Dorner, 2005), and preserving or enhancing the quality of life in elderly individuals (Lilley & Gaudet-LeBlanc, 1992). Roberts and Durnbaugh (2002) suggested that when residents enjoy their dining experiences, they will increase their intake and gain weight.

Foodservice in Long-Term Care

Food is a very essential aspect of daily life (Hicks-Moore, 2005), and quality food is important for a quality mealtime experience (Evans, Crogan, & Shultz, 2003). Meals are much more than a chance to obtain proper nutrition; they also are an opportunity to socialize (Brush, Meehan, & Calkins, 2002). In long-term care, the importance of dining experiences is evident when residents plan their daily activities around mealtimes (Beck, 1981). Acello (2005) suggested that residents who are content with meals in long-term care are less likely to criticize other features of institutionalized care. Food and foodservice experiences may have a greater

impact on long-term care residents compared with hospital patients because their stay is longer and mealtimes become part of their daily lives (O'Hara, Harper, Kangas, Dubeau, Borsutzky, & Lemire, 1997). For example, Dube, Trudeau, Belanger, (1994) used a sample of acute care residents and found that individual characteristics such as age, gender, and education had significant effects on overall customer satisfaction. In contrast, O'Hara et al. (1997) found that individual characteristics (age, gender, education) were not related to overall customer satisfaction for a sample of continuing care patients who had resided in the facility an average of 2.1 years. Therefore, differences in factors that effect customer satisfaction exist between acute care patients and long-term care residents (O'Hara et al., 1997). O'Hara et al. suggested the most significant factor when examining customer satisfaction with the foodservice in continuing care was "whether the patient has a long-term view of his or her use of dietary services." Because mealtimes are so essential in long-term care, satisfaction with dining experiences can be a major influence on the residents' "health and happiness" (Brooks, 1994). Quality of life of long-term care residents is significantly impacted by quality foodservice (Evans et. al, 2003). Vailas, Nitzke, Becker, and Gast (1998) also suggested that "food enjoyment" contributes to quality of life in the elderly. Although food and foodservice influence quality of life, Evans et al. (2003) suggested that food is often not liked by the residents of long-term care facilities. Residents may feel devalued when they are not satisfied with the quality of food they receive in long-term care facilities (Kayser-Jones, 2000). One resident reported that changes were not made when residents expressed their complaints. This finding suggested that the resident may experience a loss of hope for change (Crogan, Evans, Severtsen, & Shultz, 2004).

Meal service is often one of the most challenging aspects of long-term care management (Hiatt, 1981). A common challenge is that elderly persons who have lost some independence may use food to hide insecurities (Beck, 1981). Another challenge arises when elderly residents in long-term care have conditions that hinder digestion, absorption, and metabolism along with a decreased appetite, thus creating "the need for a more nutrient-dense diet" (Lilley & Gaudet-LeBlanc, 1992). Other significant issues in long-term care include maintaining the proper temperature of food prepared in quantity, allowing for various residents' preferences, considering therapeutic diets, and assisting many residents with feeding while understaffed (Acello, 2005).

Since some elderly persons consider food and foodservice when choosing a living facility, it is important for long-term care facilities to change their foodservices to meet the needs of residents (Chao & Dwyer, 2004). By discovering tactics to improve food and foodservice in long-term care facilities, resident quality of life could be improved (Crogan, Evans, Severtsen et al., 2004). According to Kofod and Birkemose (2004), little research in long-term care has been conducted to determine what it would take to improve the quality of the dining experiences.

Quality Perceptions and Customer Satisfaction

Quality and customer satisfaction become more important as competition increases (Hutton & Richardson, 1995). In order to compete and develop successful marketing strategies, an organization must recognize what is important to customers' perceptions of quality (Young & Brewer, 2001). When evaluating service quality, the process of service delivery and the service outcome should be assessed (Parasuraman, Zeithaml, & Berry, 1985). Intangibility, heterogeneity, and inseparability are three characteristics of service quality that make measuring service quality difficult (Parasuraman et al, 1985). However, Parasuraman, Zeithaml, and Berry (1988) suggested that the most suitable method of determining service quality was to measure customers' quality perceptions. Perceived quality has been defined as "the degree and direction of discrepancy between consumers' perceptions and expectations" (Parasuraman et al., 1988, p.17). Ekinci (2002) suggested that there are two ideologies including the North American and the Nordic European models. The North American ideology is dominated by research conducted by Parasuraman et al (1985), whereas, Gronroos (1984) is one of the pioneers of the Nordic European ideology (Ekinci, 2002).

According to Gronroos (1988), the two dimensions of perceived service quality are technical and functional. The technical dimension is defined as "the quality of the service delivered." Functional dimension is described as how customers are influenced by "how they receive the service and how they experience the simultaneous production and consumption process" (Gronroos, 1988). The technical dimension can be measured objectively, whereas, the functional dimension is usually evaluated subjectively (Gronroos, 1988). Operational image also has a large effect on the way customers perceive service quality (Gronroos, 1988). The technical and functional qualities of service have a direct effect on an operation's image (Gronroos, 1984). Gronroos (1988) suggested that there are six criteria of perceived quality; these include

professionalism and skills, attitudes and behavior, accessibility and flexibility, reliability and trustworthiness, recovery, and reputation and credibility. Lehtinen and Lehtinen (1991) described a similar approach to measuring service quality. These researchers have both a three dimensional approach and a two dimensional approach. The three dimensional approach is comprised of three components of service quality including physical, interactive, and corporate qualities (Lehtinen & Lehtinen, 1991). The two-dimensional approach is comprised of two elements of service quality including process and outcome quality (Lehtinen & Lehtinen, 1991). Both approaches developed by Lehtinen & Lehtinen (1991) are similar to the technical, functional, and image service qualities suggested by Gronroos (1988).

SERVQUAL is an instrument that has proven to be valid and reliable for measuring service quality. The instrument can assist organizations in determining expectations and perceptions of service quality (Parasuraman et al., 1988). The SERVQUAL scale is based on five dimensions of service quality and are as follows:

1. Tangibles: physical facilities, equipment, and appearance of personnel
2. Reliability: ability to perform the promised service dependably and accurately
3. Responsiveness: willingness to help customers and provide prompt service
4. Assurance: knowledge and courtesy of employees and their ability to inspire trust and confidence
5. Empathy: Caring, individualized attention the firm provides its customers

(adapted from Parasuraman et al., 1988).

Parasuraman et al. (1988) suggested that SERVQUAL has many potential applications, which include determining the relative importance of each of the five dimensions that the scale was based upon. Other applications include segmenting customers based on high, medium, and low SERVQUAL scores and analyzing each segment separately, following service quality trends, and comparing a company's service performance to competitors' service performance Parasuraman et al., 1988). Parasuraman et al. (1988) suggested that SERVQUAL is adaptable to a variety of settings. However, Carman (1990) indicated that the dimensions of SERVQUAL are not standard for all service organizations, and that the SERVQUAL instrument may need substantial customization for specific settings. Knutson, Stevens, and Patton (1995) customized the SERVQUAL model to foodservice by creating DINESERV. DINESERV was found to be valid and reliable for measuring service quality expectations among restaurant patrons (Knutson,

et al., 1995). Fu and Parks (2001) also noted that when measuring service quality among elderly diners, the five dimensions of SERVQUAL are not the basis of service quality, but a new model of three dimensions was discovered. The elderly diners responses resulted in reliability and responsibility factored into one dimension and assurance and empathy factored into another diminsion. In contrast, studies using SERVQUAL resulted in four separate dimensions (Fu & Parks, 2001).

One issue with the current models of service quality is that the models lack discriminating definitions of service quality and customer satisfaction (Ekinci, 2002). Ekinci (2002) suggested that this creates confusion when determining which construct is actually being measured. Woodside, Frey, and Daly (1989) discovered that customer perceptions of service quality affected their overall satisfaction with the service experience. When customer service quality expectations meet or exceed the performance of the service, customer satisfaction will result. However, if service performance is lower than desired, then customer satisfaction is not achieved (Bitner, 1990). Saleh and Ryan (1991) indicated that there are usually three parties involved in giving and receiving services including management, staff, and customers, and each of these groups may have differing perceptions of quality service. Gaps between expectations and perceived quality may exist depending on the parties involved (Saleh & Ryan, 1991). Saleh and Ryan (1991) also suggested that the wider these gaps, the less satisfying the experience becomes. Customer satisfaction is important to the organization, and it can assist administrators in recognizing areas that require improvement (Castle, Lowe, Lucas, Robinson, & Crystal, 2004) and assists in creating a successful business (Parasuraman, et al., 1988). Also, customer satisfaction with service experiences has been linked to future customer behavior intention (Woodside, et al., 1989).

Service quality and customer satisfaction are important in healthcare facilities (Hutton & Richardson, 1995). Most of the customer satisfaction research in healthcare has been conducted within acute-care with little research in nursing homes and assisted living facilities (Lowe, Lucas, Castle, Robinson & Crystal, 2003). One challenge when measuring service quality and customer satisfaction in healthcare operations is that the clientele may have unique needs; thus their expectations of service quality may exceed that of the provider's performance (Reidenbach & Sandifer-Smallwood, 1990). Another challenge may be that residents in long-term care facilities may fear retaliation from staff if they reveal dissatisfaction with services they are

provided (Young & Brewer, 2001), therefore, it is not reliable to measure dissatisfaction only by resident complaints (Pearson, Fitzgerald, & Nay, 2003). Thus, it is important for long-term care administrators to request customer satisfaction information from their residents (Evans & Crogan, 2005). Despite these challenges, long-term care managers must understand what aspects of care promote customer satisfaction (Paulus & Jans, 2005). Understanding the clients' expectations regarding services is important to improve the overall quality of life of the elderly population and the quality of care that is provided to residents in these facilities (Paulus & Jans, 2005). Customer satisfaction with services in hospitals affects patients' motivation to recommend that particular hospital to others (Reidenbach & Sandifer-Smallwood, 1990). Therefore, customer satisfaction information can assist potential residents and family members make educated choices about long-term care living (Lowe et al., 2003).

Customer Satisfaction in the Healthcare Sector

Several researchers have developed instruments for measuring service quality and customer satisfaction in the healthcare industry. Reidenback and Sandifer-Smallwood (1990) created a questionnaire that includes 10 service quality dimensions; SERVQUAL served as a basic foundation for the development of the survey. Their questionnaire consisted of seven factors: patient confidence, business aspect of treatment, quality of treatment, support services, physical appearance, waiting time, and empathy (Reidenback & Sandifer-Smallwood, 1990). They concluded that treatment quality, physical appearance, and business competence are three dimensions that are vital when customers evaluate service quality, satisfaction, and intended behavior in a hospital setting. These three factors are similar to service quality dimensions discussed by Parasuraman, et al. (1985): reliability, competence, and tangibles. These results suggested stability across service industries (Reidenback & Sandifer-Smallwood, 1990).

A similar approach was taken by Young and Brewer (2001) who developed an instrument to measure the residents' perceptions of service quality in continuing care retirement communities (CCRC). With the CCRC-SQM, residents' service quality perceptions are based on three dimensions including structure, process, and outcomes (Young & Brewer, 2001). Structure refers to tangible items, competence of staff, and intangibles such as the environment (Young & Brewer, 2001). Process refers to attitudes that influence perceptions of service quality, and include responsiveness, courtesy, and empathy (Young & Brewer, 2001). Outcome refers to

how the end-product is evaluated by the resident (Young & Brewer, 2001). Based on the perceptions of these three dimensions, residents are either satisfied or dissatisfied, which lead to a response by the resident (Young & Brewer, 2001). Young and Brewer (2001) concluded that the dimensions of the CCRC-SQM are similar to the dimensions measured by SERVQUAL, thus making SERVQUAL an appropriate start in developing an instrument to implement in long-term care facilities. Since the dimensions are not identical, modification to SERVQUAL may be required to adequately measure long-term care residents' perceptions of service quality and satisfaction.

Another instrument for measuring resident satisfaction with long-term care living was developed by Paulus and Jans (2005) in four phases. In phase one the researchers conducted focus groups with staff members working with long-term care residents to determine significant factors affecting quality of life. Seven domains were determined including human contacts within the institution, relations outside the institution, accommodation of facilities, quality of care experienced by the respondent, activities, respect for the individual, and financial issues (adapted from Paulus & Jans, 2005). The second phase of instrument development included conducting interviews with residents of long-term care facilities to determine which factors were the most significant in influencing their satisfaction with service (Paulus & Jans, 2005). Phases three and four involved the first draft of the questionnaire and the pilot test, respectively (Paulus & Jans, 2005). Paulus and Jans (2005) discovered that most residents valued human relationships as the most important factor in influencing quality life in long-term care facilities. They also found that quality meals were an essential factor in the facility accommodation domain. Results from the pilot study indicated that most respondents were satisfied with life in a long-term care facility, and the majority (92%) of the sample would recommend the facility to someone else (Paulus & Jans, 2005).

Customer Satisfaction with the Dining Experience in Long-Term Care

The high risk for malnutrition in the elderly population provides justification for research in the area of residents' satisfaction with their dining experience in long-term care facilities (West, Ouellet, & Ouellette, 2003). Several studies suggest that residents in long-term care facilities are not satisfied with the food and foodservices (West et al., 2003). West et al. (2003) found that residents had low satisfaction ratings for mealtime entertainment, ability to be a good

host to visitors, ability to choose and change both foods served and eating places, access to foods, and ability to season foods. The same residents had moderate satisfaction levels for varied menu, appetizing meals, and feeling at home (West et al, 2003). Crogan, Evans, Severstsen, et al. (2004) discovered that residents have varying opinions about the taste and presentation of food and variety of food. However, common issues that residents complained about were food served at the correct temperature and lack of choices of new food on the menu (Crogan, Evans, Severstsen, et al., 2004).

Crogan, Evans, and Velasquez (2004) developed FoodEx-LTC, a forty-four question, five-domain instrument that measures resident satisfaction with the food and foodservice. The five domains include enjoying food and foodservice, exercising choice, cooking good food, providing good food service stated in negative terms, and providing good food service stated in positive terms (Crogan, Evans, & Velasquez, 2004). Crogan, Evans, and Velasquez (2004) found that residents who had higher scores in the "enjoying food and foodservice" and "exercising choice" also had higher albumin levels. The study also found moderate-to-severe depression when participants reported that they did not enjoy the food and foodservice (Crogan, Evans, & Velasquez, 2004). BMI and functional status did not have a relationship with any of the five domains measured (Crogan, Evans, & Velasquez, 2004). Another study using the FoodEx-LTC revealed that more than half of the sampled residents reported hating the food that was served, receiving the same food often, and receiving food with the same preparation methods (Evans & Crogan, 2005). Evans and Crogan (2005) also found that a majority of residents wanted some choice regarding their meals and residents believed that staff members were competent in food service. Overall, Evans and Crogan (2005) reported that a majority (89%) of residents were satisfied or somewhat satisfied with the food service.

Lee, Shanklin, and Johnson (2003) developed a service quality measurement instrument for residents in continuing care retirement communities (CCRCs). This instrument was based on six dimensions of service quality, five of which were adapted from SERVQUAL. These dimensions included assurance, empathy, food, reliability, responsiveness, and tangibles (Lee, et al., 2003). The initial instrument was reviewed by experts including foodservice directors, dietitians, and scholars with concentrations in foodservice and marketing. Focus groups of residents of CCRCs determined the importance of items included in the instrument. A pilot test was conducted to test validity and reliability, and results of the pilot test concluded that the

instrument was valid and reliable (Lee, et al., 2003). Residents participating in the focus groups during the instrument development indicated that both the food quality and service quality are essential when they evaluated foodservice at a CCRC (Lee, et al., 2003).

Huang (2004) developed an instrument to assess assisted living residents' perceived quality, satisfaction, and behavioral intentions in foodservice. The pilot test found that the instrument was both reliable and valid. Huang (2004) discovered that service quality scores were often higher than food quality scores among assisted living residents, and concluded that perceived quality had a significant effect on satisfaction with foodservice. Perceived quality and customer satisfaction with the dining experience among assisted living residents also had a significant, direct impact on the residents' food consumption (Huang, 2004).

Dube, et al. (1994) determined that there are many variables that affect satisfaction with dining experiences including "satisfaction with food quality, customization, attitude of the staff who deliver menus, meal service timeliness, and meal service reliability." Lee (2002) found that perceptions of overall foodservice quality differed significantly among CCRC facilities.

Food Quality

One of the most important aspects of satisfaction with the dining experiences in long-term care facilities is food quality (Crogan, Evans & Velasquez, 2004). When food is served that residents of long-term care facilities do not enjoy, they are dissatisfied with their care (Kayser-Jones, 1996). Huang (2004) found that food quality is linked with a resident's intake of nutrients. Crogan, Shultz, Adams, and Massey (2001) determined that the two most common barriers that affect nutritional status of long-term care residents were dislike of the food and presentation of the meals. Another study indicated that more than half of the sampled residents stated they received food they did not like (Evans & Crogan, 2005). Lower ratings of taste of food have been linked to lower resident satisfaction ratings; the presentation of the meals also influenced overall satisfaction with meals (O'Hara, et al., 1997).

Presentation of meals is important in stimulating appetite in long-term care residents (Brooks, 1994). Lee (2002) found that independent living residents of a continuing care retirement community (CCRC) listed "attractive presentation of food" as an important attribute for a positive dining experience. Brooks (1994) suggested that a nutritious diet is not beneficial if the resident does not consume it because the meal appears unappetizing. Brooks (1994) also

recommended that presenting food in smaller portions may make the meal more appealing. Crogan et al. (2001) found that a majority of the nursing staff reported that nursing home residents often think that the food is not presented in a way that encourages them to eat the meals and this affects their food intake.

Variety has been identified as another essential aspect of food quality in long-term care facilities (Lilley & Gaudet-LeBlanc, 1992). Several studies indicated that lack of variety is a significant issue in long-term care facilities (Evans & Crogan, 2005; Crogan, Evans, Seversten et al., 2004; Evans et al., 2003; West et al., 2003). Independent living residents of CCRCs also listed variety of menu items an important attribute of a positive dining experience (Lee, 2002). Evans and Crogan (2005) reported that more than half of the sampled residents indicated that they received the same food frequently and that the food preparation methods lacked variety. Residents often complained about "lack of choices of new foods on the menu" and "monotonous meals" (Crogan, Evans, Seversten, et al., 2004). Seasonal cycle menus and special dinners may provide more menu variety (Lilley & Gaudet-LeBlanc, 1992).

Other variables that may affect perceptions of food quality and quality of the dining experience include portion size and temperature. Research has also shown that "getting enough to eat" is important to residents when discussing a quality dining experience. Evans et al. (2003) suggested that a balance between too little and too much is important when determining the proper portion size. Another study showed that receiving the food at the correct temperature was linked to patient satisfaction (O'Hara et al., 1997). Independent living residents of CCRCs indicated that food being served at the proper temperature was an important attribute for a quality dining experience (Lee, 2002). Huang (2004) found that appropriate temperature was a variable rated low among assisted living residents. Huang (2004) also discovered that appropriate tenderness, texture, and consistency of quality food were rated low among assisted living residents. Seo (2004) reported similar findings; residents rated components such as temperature and consistency of food low. Independent living residents of CCRCs also indicated that the consistency of food quality was an important factor for a quality dining experience (Lee, 2002). Focusing on a combination of food quality characteristics may be essential when trying to improve residents' satisfaction with the food and foodservice in healthcare (O'Hara et al., 1997). Also, evaluations of various components of food quality may differ among facilities (Huang, 2004).

Past research has found that aspects of food quality such as taste of food, meal presentation, variety of menu items, portion size, food temperature, and consistency of receiving quality food have affected residents' perceived quality and satisfaction with their dining experiences in their facilities. Previous studies have also shown that residents' evaluations of food quality have varied among different long-term care facilities. Based on the results of previous research, the following hypothesis has been developed:

H1: Residents' perception of food quality has a positive influence on residents' satisfaction.

Service Quality

Food is not the only aspect of foodservice that is important to the customer, regardless of the setting (Dube et al., 1994). Satisfaction with meals is dependent on both the food quality and interpersonal aspects of foodservice (Crogan, Evans, & Velasquez, 2004). Interpersonal aspects of foodservice are often ignored in satisfaction investigations because they are difficult to quantify (Dube et al., 1994). Limited research has been conducted to measure service quality components among the elderly population (Fu & Parks, 2001). Hotaling (1990) suggested that attitudes of staff members can significantly improve or worsen the dining experience for residents of a long-term care facility. Dube et al. (1994) found that although customer satisfaction was most dependent on food quality, "attitude of staff who delivers menus" was a significant dimension predicting patient satisfaction with foodservice. Lee (2002) found that service quality significantly effected customer satisfaction ratings among CCRC independent living residents. "Being served by courteous staff" was a component of service quality that was found to be important to residents in a nursing home (Evans, Crogan, & Shultz, 2003). Other variables that are important aspects of service quality include staff having a "caring attitude" towards residents, residents receiving help from staff members with meals, and staff members correcting problems that arise during mealtimes (Evans, Crogan, & Shultz, 2003).

Pearson et al. (2003) indicated that fostering relationships between nursing home residents and staff members may make the residents feel more comfortable with expressing dissatisfaction with foodservice. When residents express their attitudes about service, the nursing staff is able to respond to residents' complaints. Katzman (1999) reported that in one hospital, customer satisfaction with the foodservice increased with an increase in patient/staff

interaction. Huang (2004) found that when evaluating quality of foodservice in assisted living facilities, the components that were rated the highest were service quality components including "employees' respect for residents, employees' appearance, and employees' attentiveness." These ratings suggested that assisted living residents enjoy their interaction with staff members (Huang, 2004). Seo (2004) also found that service quality components were rated highest among residents in continuing care retirement communities.

Fu and Parks (2001) developed an instrument using SERVQUAL to evaluate restaurant service quality perceptions of the elderly patrons. Fu and Parks' (2001) instrument used three dimensions because factor analysis did not identify SERVQUAL's five dimensions. The three dimensions the instrument included: tangibles, reliability and responsiveness as one, and assurance and empathy as one (Fu & Parks, 2001). Reliability and responsiveness is associated with the speed and accuracy of service, where assurance and empathy is related to how restaurant employees distinguish clientele needs (Fu and Parks, 2001). Fu and Parks (2001) discovered that the most significant factor of foodservice among elderly diners is the "friendliness of service and the feeling of being valued customers. The "speed of service" did not significantly effect their perceptions of service quality (Fu & Parks, 2001). Evans, Crogan, and Shultz (2003) found that 25% of the nursing home residents reported that meals were served on time. Residents may tire more quickly if they have to wait long periods of time for their meals (Hotaling, 1990). Also, residents should have adequate time to eat without feeling rushed (Hotaling, 1990). "The description of 'time thrift' (i.e., meals allocated and consumed in as short a time as possible with minimal disruption to production) is common in many nursing homes and hospitals" (Pearson, et al., 2003, p. 43). Pearson et al. (2003) found that staff often felt that they did not have adequate time to spend with each of the residents. Residents often evaluated service quality based on factors such as "having enough help" and "getting meals on time" (Evans, Crogan, & Shultz, 2003).

"Getting good service" was expressed by nursing home residents as a component to a quality dining experience, and having adequate staff was an aspect of this component (Evans, Crogan, & Shultz, 2003). Inadequate staff in nursing homes can impact residents in a variety of ways including receiving food that is not at the correct temperature because the residents are waiting for assistance from a limited number of staff members (Evans, Crogan, & Shultz, 2003). Another consequence of inadequate staff was that aesthetic features of both the food and the

dining room were overlooked. Often when the nursing staff are involved in feeding, the residents are rushed, they mix the food together making it unappetizing and unrecognizable and give little attention to keeping the dining environment clean (Kayser-Jones & Schell, 1997). Other consequences of inadequate staff included residents not getting adequate assistance with meals and residents being fed "quickly and sometimes forcefully" (Kayser-Jones & Schell, 1997).

Evans, Crogan, and Shultz (2003) reported that long-term care residents believe that "having experienced cooks" is an important component for a quality dining experience. Residents indicated that hiring competent cooks may result in better tasting food (Evans, Crogan, & Shultz, 2003). Independent living residents of CCRCs indicated that having a trained chef and staff that were attentive to the residents' needs was an important attribute of a positive dining experience (Lee, 2002).

Perceptions of service quality were found to be significantly different among assisted living facilities; however, satisfaction levels did not vary (Huang, 2004). Huang (2004) indicated that assisted living residents rated satisfaction with service quality higher than satisfaction with food quality.

Research has shown that service during the mealtimes is important for developing a quality dining experience among long-term care residents. Previous research has shown that the following aspects are components that have affected perceived quality evaluations and satisfaction with the dining experience among long-term care residents: attitudes of staff, adequate staff, experienced employees, and employees' appearance. Studies also have found that service quality evaluations differed among long-term care facilities. Based on these findings, the following hypothesis was formulated:

H2: Residents' perception of service quality has a positive influence on residents' satisfaction.

Customization

Elderly individuals who live in long term care facilities may feel as if they have lost their independence through institutionalization, eating disabilities, and therapeutic diets (Lilley & Gaudet-LeBlanc, 1992). This loss of independence may be difficult to accept because elderly individuals have been caring for themselves all of their lives, including planning their meals,

cooking for themselves, and feeding themselves (Lilley & Gaudet-LeBlanc, 1992). Mealtime choices are individualized; however, when residents are required to conform to the routine of a nursing home facility, they no longer have as many choices (Kayser-Jones, 1996). Dube, Trudeau, and Belanger (1994) defined "customization" as the patients' "possibility to choose appealing meals, possibility to choose healthful meals, clarity of menu presentation, portion size, conformity with menu choices, instruction about menu choices and flexibility in service hours." Customization was the second most important dimension (following food quality) when determining customer satisfaction with mealtimes (Dube, et al., 1994). Independent living residents of CCRCs indicated that their ability to choose at mealtimes was an important attribute for a quality dining experience (Lee, 2002). Kofod and Birkemose (2004) interviewed residents of "stay-and-living environments' (SLEs)" where mealtimes are structured to be a more home-like situation. A majority of residents reported that they enjoyed their ability to influence menu planning, choose where to eat, and having their food preferences heard (Kofod & Birkemose, 2004).

The FoodEx-LTC instrument contains a subscale that measured the ability of nursing home residents to exercise choice (Evans & Crogan, 2005). Evans & Crogan (2005) found that 79% of residents wanted food choices, and more than half wanted the ability to choose when to eat. Other residents discussed the importance of their ability to select alternative foods if they did not like the original selection (Evans, Crogan, & Shultz, 2003). Residents also enjoyed the possibility of being involved in "selecting new items" for the menu and the possibility of choosing to consume food prepared outside the facility (Evans, Crogan, & Shultz, 2003). Crogan, Evans, Seversten et al. (2004) found that dissatisfied residents often ordered take out because of unlimited choice or unpalatable food. Choosing where to eat was important to residents for a quality dining experience (Evans, Crogan, & Shultz, 2003). Some residents reported preferences for eating in their rooms, while others preferred to gather with other residents and socialize during mealtimes (Evans, Crogan, & Shultz, 2003). According to nursing home residents "asking for and receiving appropriate amounts…of food" was another dimension that was important for a quality dining experience (Evans, Crogan, & Shultz, 2003).

Pearson et al. (2003) discovered that most nursing home staff would accommodate residents' seating and food preferences. They found that most nursing homes had menus that allowed residents to choose foods or alternatives to meals (Pearson et al., 2003). Katzman

(1999) reported that one hospital solved many of their foodservice problems by incorporating a restaurant-style menu and allowing patients to choose their meals. Lilley and Gaudet-LeBlanc (1992) suggested that allowing residents to have choices at mealtimes is a way of empowering them and is a method of giving them some control over their lives (Lilley & Gaudet-LeBlanc, 1992).

Past research has assessed components of customization separately, but limited research has evaluated aspects of customization collectively. Some components of customization that have been evaluated separately include ability to choose food, when to dine, where to dine, portion size, alternative foods, and food from outside the facility. In previous studies, some of these components have been shown to affect resident satisfaction with the dining experience. Therefore, the following hypothesis has been proposed:

H3: Residents' perception of the level of mealtime customization has a significant influence on residents' satisfaction.

Environment

Customers may evaluate service delivery and base patronage decisions on the organization's physical environment (Chang, 2000). Influence of the physical environment on the customers' perceptions of the service quality is obvious in service organizations because the service is produced and consumed in this environment (Bitner, 1992). Bitner (1992) suggested that both clients and employees react to their physical environment "cognitively, emotionally, and physiologically, and that those responses are what influence their behaviors in the environment." Individuals use their reactions when forming perceptions of service quality of an organization (Bitner, 1992). Chang (2000) found that customer satisfaction is significantly effected by client's perceptions of the organization's physical environment.

Some research has been conducted that illustrated how the environment influences the food intake and nutritional status among long term care residents with dementia (Dorner, 2005; Brush et al., 2002; Hicks-Moore, 2005). Dorner (2005) suggested that the atmosphere can have a major impact on nutritional status with dementia residents. Brush et al. (2002) researched the impact of adequate lighting on food intake with these residents. They found that sufficient lighting increased intake in this group of residents (Brush et al., 2002). Hicks-Moore (2005) examined the effects of relaxing music played at mealtimes on agitated residents. The research

showed that agitated behaviors decreased during the dining sessions when the music was played and residents socialized more when music was being played (Hicks-Moore, 2005).

However, health care providers frequently fail to recognize the importance of the environment on long-term care residents' dining experience (Hotaling, 1990) and resident satisfaction. Fu and Parks (2001) suggested that elderly individuals desire "to eat in a welcoming, pleasant, comfortable atmosphere." The environment also impacts the residents' nutrient intake (Hotaling, 1990), contributes to residents' overall nutrition (Hiatt, 1981), and can affect their quality of life (Brush et al., 2002). However, there is limited research showing the impact of environmental changes on long term care residents' satisfaction (Brush et al., 2002).

Hotaling (1990) suggested that the factors to be considered when evaluating the environment at mealtimes in long term care includes "esthetics of the area, style of dining, psychosocial considerations (such as seating arrangements and pre-meal stimulation), space and equipment, positioning of residents, and staff attitudes." Bitner (1992) acknowledged three components pertinent when evaluating the physical environment including "ambient conditions, spatial layout and functionality, and signs, symbols, and artifacts." Collectively, these components compose "perceived servicescape" (Bitner, 1992). Wakefield and Blodgett (1996) found that customer satisfaction was positively impacted by the perceived quality of servicescape. Wakefield and Blodgett (1999) reported that the physical environment had a positive impact on the level of customers' excitement in various leisurely settings. The researchers suggested that "different aspects of the physical environment may be more or less important dependent upon the setting" (Wakefield & Blodgett, 1999).

"Ambient conditions include background characteristics of the environment such as temperature, lighting, noise, music, and scent" (Bitner, 1992). Wakefield and Blodgett (1996) found that the facility aesthetics had a positive impact on the customers' perceived quality of servicescape in various leisure settings. Facility aesthetics were the primary determinant of perceived quality of servicescape (Wakefield & Blodgett, 1996). Ryu (2005) found that customers of upscale restaurants rated room temperature, welcoming lighting, lighting as part of comfortable atmosphere, and colors of a warm atmosphere high, and therefore important to customers. Independent living residents of CCRCs indicated that atmosphere of the dining room and appropriate lighting were factors that were important when forming a quality dining experience (Lee, 2002). Brush et al. (2002) researched the effects of adding extra lighting in

dining rooms during mealtimes for long term care residents with dementia. They found that the lighting intervention positively impacted the food intake of a majority of the residents. Hicks-Moore (2005) investigated the difference of playing relaxing music and silence during mealtimes for residents with dementia. They discovered that agitated behaviors were significantly lower while relaxing music was being played in the dining room compared with the absence of music. Milliman (1986) also found that using slow-temp background music in restaurants caused customers to stay longer, consume more alcohol, and consume about the same amount of food compared to using other types of music. The slow music thus created a more soothing, relaxing environment. In two long term care facilities, a noisy environment in the dining room was created by various distractions such as televisions, radios, agitated residents, and medication cart drawers being opened and closed; these distractions created a disruptive mealtime for the residents (Roberts & Durnbaugh, 2002). Distractions can cause residents to lose focus on eating (Roberts & Durnbaugh, 2002). Acello (2005) suggested that it is critical to maintain the dining room environment free of unappetizing scents.

Bitner referred to spatial layout as the size and shape, arrangement, and space between items such as equipment and furnishings, and functionality as how these items perform and accomplish goals efficiently (1992). Wakefield and Blodgett (1996) discovered that the perceived quality of servicescape was positively impacted by layout accessibility. Seat comfort also was found to positively impact the perceived quality of servicescape in some leisurely settings, but not others (Wakefield & Blodgett, 1996). Ryu (2005) discovered that the spacious seating arrangement factor was rated high and that this factor is important to customers' of upscale restaurants. Independent living residents of CCRCs indicated that storage space for walkers was an important attribute for a quality dining experience (Lee, 2002). Acello (2005) recommended that long-term care residents eat at smaller tables to allow for socialization and to prevent isolation during mealtimes. Hotaling (1990) suggested that it is important to have adequate space between tables in order to easily transfer residents from wheelchairs to chairs and to easily move residents in wheelchairs. Avoiding crowding in the dining room can assist in creating a more 'normal' eating environment (Hotaling, 1990). Hotaling (1990) recommended that correct positioning of long-term residents while eating can enhance their dining experience.

Bitner referred to signs, symbols, and artifacts as signage for communicating to clients and employees (1992). Signs, symbols, and artifacts also included décor, such as floor

coverings, photographs, and furnishings (Bitner, 1992). Electronic equipment and displays were found to have significantly positive impacts on perceived servicescape in some leisurely settings but not others (Wakefield & Blodgett, 1996). Hotaling (1990) suggested that décor of the dining room such as wall decorations, plants, and pictures can aid in creating a positive dining experience for long term care residents. Independent living residents of CCRCs indicated that use of tablecloths on the dining room tables at mealtimes was an important factor in creating a positive mealtime experience (Lee, 2002).

Cleanliness of the facility is another component that is related to the perceived quality of servicescape especially when customers spend a lot of time in the service setting (Wakefield & Blodgett, 1996). Wakefield and Blodgett (1996) found that cleanliness of service facilities had a significant, positive effect on customers' perceived quality of servicescape in leisurely settings. Dirty conditions in leisurely settings may cause customers to have negative reactions towards the facilities (Wakefield & Blodgett, 1999).

Some research has been conducted in long-term care that illustrated how the dining environment affected food intake among special populations. However, there was limited research showing how the dining environment affected resident satisfaction in long-term care facilities. Previous research has assessed the affect of servicescape on customer satisfaction in restaurant sector. Past studies have shown that servicescape had a positive affect on customer satisfaction. Based on these findings, the following hypothesis has been proposed:

H4: Residents' perception of the quality of servicescape has a positive influence on residents' satisfaction.

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CHAPTER 3 - METHODOLOGY

The purpose of this study was to examine perceived quality of factors of the dining experience, including food quality, service quality, customization, and servicescape among assisted living residents. Also, the impact of these factors on resident satisfaction was examined. A cross-sectional study examined the relationships of perceived quality and satisfaction and tested the hypotheses. This chapter describes the methods used to accomplish the objectives of this study.

Population and Sample

The population of this study was residents living in assisted living facilities within a 110-mile radius of the research institution. This radius was determined by considering funding available to support the project. Continuing care retirement communities (CCRC) were excluded because of the difficultly in locating a directory that listed licensed assisted living facilities within CCRCs. The Directory of Kansas Assisted Living Facilities (2006) was used to determine the number of licensed facilities within the sampling frame. The August 2006 edition of the Directory of Kansas Assisted Living Facilities listed 28 facilities in the 110-mile radius; these facilities had a total of 1127 licensed beds.

The sample for this study was determined by randomly selecting 16 facilities from the 28 facilities within the sampling frame. The number of facilities needed to participate was determined by looking at the average number of residents in the facilities and considering the response rate from other studies of assisted living facilities. The researcher called the administrators of the selected facilities to ascertain their participation in the study. If administrators agreed to participate, the residents of these facilities became part of the sample. If administrators declined to participate, the researcher randomly selected another facility to replace that facility and called the administrator to request their participation.

Instrument Development

The constructs explored in this study were food quality, service quality, customization of meals, and dining room environment; specific variables for each construct are described below. Attributes of food quality included: taste of food; variety of menu choices, preparation methods, frequency of menu items served; temperature of food served; quantity of food served; presentation of meals served; consistency of taste, appearance, and overall quality of food served. Characteristics of service quality were attitude of service staff, promptness of service, appearance of service staff, adequate staffing, and competency of staff. These two sections of the questionnaire used items from the instrument developed by Huang (2004). The questionnaire developed by Huang (2004) involved seven measurement items for food quality and seven measurement items for service quality. These measurement items were determined based on results of focus groups conducted by Huang (2004) in assisted living facilities and Seo and Shanklin (2003) in continuing care retirement communities. Huang's (2004) instrument used a 5-point Likert scale. Permission was obtained from Huang to modify the questionnaire for this study (Appendix A).

The construct of customization measured the residents' ability to choose food that they enjoy, dining location, portion size, and service hours. Dube, Trudeau, and Belanger (1994) investigated these attributes of customization among patients in an acute care setting. Environmental factors were ambient conditions, including room temperature, lighting, noise, music, and scent of the dining room; spatial layout, including comfort of seating, closeness to other patrons, and table height; signs, symbols, and artifacts, including tablecloths, dining room décor and furniture, china, silverware, and glassware; and cleanliness of tables and chairs, walls, and floors in the dining room. These environmental components are known collectively as servicescape (Bitner, 1992).

Focus Groups

To develop the instrument, focus groups were conducted to determine the specific attributes of these four components that are the most important to the residents. Residents at randomly selected facilities were asked to participate in a focus group to discuss their dining experiences at their facility. Administrators and nursing staff members were asked to assist researchers in selecting residents to participate in the focus group. Five to nine residents were

selected from each facility to participate in the focus groups. Each focus group was approximately 45 to 60 minutes in length, depending on the conversation between group members. Focus groups were conducted in the morning after breakfast for two facilities, and the other facility's residents participated in the focus group in the afternoon prior to the dinner meal. Focus groups were scheduled so that the group would not interfere with mealtimes or other activities planned for the residents. Focus groups were conducted in a meeting room or private dining room so that residents were not distracted by others. Residents were asked their beliefs about what is essential for a quality dining experience by a moderator and data was recorded by an additional research assistant. The focus group discussion was also tape recorded. The focus group guide that includes a list of questions that were asked during the focus group is presented in Appendix B. Following the focus groups, the content of the questionnaire was revised to include the components that the focus groups determined were the most important for a quality dining experience.

Pilot Test

A pilot test was conducted with residents in two assisted living facilities within a 110-mile radius of the research institution to evaluate the reliability and validity of the instrument. See Table 3.1 for profiles of these facilities. These facilities were randomly selected from the population. Two forms of the questionnaire were distributed to residents in these facilities. Form A contained items that were clustered for each construct. Form B contained the same items, but the items were randomized. Two forms of the questionnaire were distributed to assess variances in response patterns of the clustered items versus the randomized items.

In facility one, residents completed the questionnaire after an exercise class. Researchers returned at lunch on the same day to announce the survey to the residents who were not at the exercise class and requested that they complete the questionnaire. After the questionnaires were distributed, the researchers were available to assist residents by reading the questionnaire and marking their responses. Of the 41 residents, 24 residents volunteered to participate in the pilot test. Of the 24 residents who completed the questionnaire, 12 residents completed Form A of the questionnaire, and 12 residents completed Form B of the questionnaire.

In facility two, the administrators announced the opportunity to participate in the study at lunch. Residents who volunteered to complete the questionnaire remained in the dining room after

lunch. Researchers were again available to assist residents. Of the 21 residents at the facility, 12 residents volunteered to participate in the pilot test. Six residents completed Form A and six residents completed Form B.

Data was entered into SPSS for windows and statistical analysis was conducted to test the reliability of the instrument. Form A was more reliable than Form B for all constructs except for the service quality construct. Reliability also was higher for Form A of the questionnaire than combined reliability of Form A and Form B for all constructs except for the service quality construct. See Table 3.2 for Cronbach's alpha for each construct for the two forms and the final questionnaire. Frequency distributions for Form A and Form B of the questionnaire were also run separately in SPSS. Frequency distributions showed that there was no central tendency in the responses on either form; the responses were evenly distributed. Therefore, no halo effect or response pattern was detected for measurement items clustered into constructs. Form A was selected based on its higher Cronbach's alpha. This format also simplified the cognitive response demand since residents would rate all items related to each construct before proceeding to the next construct. Cronbach alpha was run on the final questionnaire. The alpha for all four constructs was higher for the final questionnaire than the pilot test questionnaires.

Residents did not find any questions confusing; therefore, no revisions were made to the questionnaire. The final questionnaire can be found in Appendix C. Results of the pilot test revealed that the best time to distribute questionnaires was at a mealtime or after another activity that most residents attended. The researcher found that many residents needed assistance with either reading the questionnaire and/or marking responses because of various health conditions. Residents completed the questionnaire in an average of 17 minutes (range: 10-30 minutes). The time that it took the residents to complete varied based on the amount of assistance that the residents needed from researchers.

Table 3.1—Profile of Facilities Participating in Pilot Test of Questionnaire

	Facility 1	Facility 2
Population of City	10,000	10,000
Number of Residents	41	21
Number of Licensed Beds	46	23
Capacity Percentage	89.1	91.3
Staffing Ratio during mealtimes	20 residents to one staff member	7 residents per staff member
Meal Plans Offered	All meals included in monthly fee	All meals included in monthly fee
Style of Meals	Plated	Plated with Salad Bar
Length of Cycle Menu	5 weeks	6 weeks
Person Responsible for Menu Planning	Food Distributor	Food Distributor
Credential of Menu Planner	Registered Dietitian	Registered Dietitian
Resident Cost/Month	$2,484	$2,573
Food Cost/Patient Day	$4.50	$3.20
Foodservice Management	Self-Operated	Self-Operated
Facility Management	Self-Operated	Self-Operated
Prime Vendor Contract	Yes	Yes

Table 3.2—Cronbach's Alpha for Pilot Test and Final Questionnaires

Construct	Form A	Form B	Combined Form A & Form B	Final Questionnaire
Food Quality	0.8146	0.7079	0.7892	0.896
Service Quality	0.5914	0.6913	0.6565	0.886
Customization	0.8663	0.7923	0.8307	0.845
Environment	0.8346	0.7351	0.7853	0.896

Data Collection

Administrators of the participating facilities were contacted and an initial appointment was arranged with the researcher. During the initial meeting with the administrator, the researcher explained the research process, gathered information about the facility, and determined the best time to distribute the questionnaires to the residents. Information about the project was placed in the facility's newsletter. Administrators were contacted again to schedule a date to distribute the questionnaires. One week prior to the questionnaire distribution, reminder postcards explaining the project were sent to the residents. The researcher and a research assistant distributed questionnaires to the residents at the time specified by the administrators and were available to assist the residents in completing the questionnaire. If questionnaires were not completed the day that the researcher was present, a self-addressed, paid postage envelope was provided to the resident to mail the completed questionnaire to the researcher.

Data Analysis

SPSS for Windows was used to perform descriptive statistics and regression analysis to determine the relationship between the constructs and customer satisfaction. Descriptive analysis was used to assess the data and generate a demographic profile of the sample. Multiple regression analysis was used to determine the impact of perceptions of quality of the four constructs on resident satisfaction with the dining experience (H1-H4). Stepwise regression analysis was used to assess the impact of quality attributes on residents' satisfaction.

Differences among facilities depending on the number of residents and location of facility (rural versus urban) were analyzed. If differences among facilities were found, differences were explored between groups using t-tests and ANOVA. Differences in satisfaction

based on residents' characteristics such as age, gender, resident's perceived health status, and length of residence in assisted living facility, education level, and marital status were analyzed. Composite means for quality attributes were also calculated and compared among the four constructs. Differences in resident ratings for quality attributes were evaluated based on demographic data. For age, differences were assessed between residents aged less than 79 years, 80 to 89 years, and greater than 90 years. For marital status differences were evaluated between residents who were single, married, widowed and divorced. For length of stay, differences were assessed between residents who resided in the facility 12 months or less, 13 to 48 months, and greater than 48 months. For educational level, differences were analyzed between residents who had completed a high school education or less and those who had completed some level of college education. Differences in satisfaction based on perceived general health were analyzed using two categories: those who rated their health status lower than the median rating and those who rated their health higher than the median rating. Differences in satisfaction were also assessed based on size of the facility and location of the facility. For size of facility, two categories were used: facilities with less than the median number of residents per facility and facilities with more than the median number of residents per facility. For location of the facility, differences were assessed based on the city population where facilities were located. Facilities located in a city where the population was 10,000 or greater were considered urban facilities, and facilities located where the city population was less than 10,000 were considered rural facilities.

Project Approval

Before conducting this study, approval from the research institution's review board was obtained. Participants in the pilot test and study were informed of their rights, the study methodology, and the use of the data by using cover letters on the questionnaire and providing additional instruction at the time of survey administration.

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CHAPTER 4 - ATTRIBUTES INFLUENCING ASSISTED LIVING RESIDENTS' SATISFACTION WITH MEALSERVICE—INSIGHTS FROM FOCUS GROUPS

Introduction

In 2003, the elderly population, defined as those aged 65 years or older accounted for 12.4% of the population in the United States, or 35.9 million Americans (Administration on Aging [AOA], 2004a). According to the AOA (2004a), life expectancy increased approximately 30 years from 1900 to 2002. Life expectancy in 2002 was 77.3 years. In the next 30 to 40 years, the elderly population and the proportion of this age group is expected to grow due to baby boom generation reaching age 65 (AOA, 2004b). By 2030, the elderly population is predicted to double and increase from 13% in 2004 to 20% of the total U. S. population (AOA, 2004b). The elderly group with the highest growth rate will be those aged 85 years or older. By 2050, this group is predicted to compose 24% of the elderly population, and 5% of the American population, or 19 million people in the United States (U.S. Department of Commerce, 1995). According the AOA (2004b), life expectancy is predicted to continue to increase.

A moderately new housing alternative that is becoming more popular with the elderly population is assisted living facilities. The number of assisted living units is increasing in the United States (Chao & Dwyer, 2004). Assisted living popularity is growing because this option provides personal care, security, and resident independence and privacy (National Center for Assisted Living [NCAL], 2001). Assisted living is defined differently by researchers, states, and accrediting organizations (American Association Retired Persons [AARP], 2004). According to the NCAL (2001), "assisted living is a long term care alternative for seniors who need more assistance than is available in a retirement community, but who do not require the heavy medical and nursing care provided in a nursing facility (p. 1)." No federal regulations exist for assisted living facilities; thus, individual states determine how these facilities are governed resulting in varying regulations for licensing and quality standards (AARP, 2004). An estimated 99% of assisted living facilities are "licensed or certified by the states in which they operate" (NCAL,

2001). Quality service among assisted living residences is often established by the increasing competition in the long-term care sector (NCAL, 2001).

Previous studies have evaluated foodservice constructs such as food quality (Crogan, Evans, Severtsen, & Shultz, 2004; Dube, Trudeau & Belanger, 1994; Evans, Crogan & Shultz, 2003; O'Hara, Harper, Kangas, Dubeau, Borsutzky, & Lemire, 1997), service quality (Crogan, Evans, Seversten, et al., 2004; Dube et al., 1994; Evans et al., 2003), customization of mealtimes (Dube et al., 1994; Evans et al., 2003; Evans, Crogan, & Shultz, 2005), and the dining room environment in nursing homes, hospitals, and restaurants (Brush, Meehan, & Calkins, 2002; Hicks-Moore, 2005; Fu & Parks, 2001). However, limited research has been conducted in assisted living facilities regarding the residents' perceptions of the dining experience. West, Ouellet, and Ouellette (2003) suggested that residents in long-term care facilities were not satisfied with the food and foodservices. Therefore, residents' expectations regarding their dining experiences were not being met in these facilities.

In this study, focus groups were used to explore assisted living residents' dining experiences. The purposes of the focus groups were to gain insight from assisted living residents regarding their dining experiences and to determine what aspects of meal service were important to them. Four constructs of the mealtime were specifically discussed in the focus groups: food quality, service quality, customization, and environment. The objectives of the focus groups were to determine specific attributes of food, service, resident choice, and environment that affect assisted living residents' quality perceptions of their dining experiences and to develop a reliable and valid instrument that could be administered to a larger sample of assisted living residents.

Review of Literature

Food is an essential aspect of daily life (Hicks-Moore, 2005), and quality food is very important for a quality mealtime experience (Evans et al., 2003). Meals are much more than a chance to obtain proper nutrition; they also provide residents an opportunity to socialize (Brush et al., 2002). In long-term care, the importance of dining experiences is evident when residents plan their daily activities around mealtimes (Beck, 1981). Acello (2005) suggested that residents who are content with meals in long-term care are less likely to criticize other features of institutionalized care. Quality of life of long-term care residents is significantly impacted by the

quality of the foodservice (Evans et. al, 2003). Vailas, Nitzke, Becker, and Gast (1998) also stated that "food enjoyment" contributes to quality of life in the elderly. Roberts and Durnbaugh (2002) reported that when residents enjoy their dining experiences, they will increase their food intake and gain weight. Although food and foodservice influence quality of life, Evans et al. (2003) stated that residents of long-term care facilities often do not like the food served.

One of the most important aspects of satisfaction with the dining experiences in long-term care facilities is food quality (Crogan, Evans & Velasquez, 2004). When food is served that residents of long-term care facilities do not enjoy, they are dissatisfied with their care (Kayser-Jones, 1996). Huang (2004) found that food quality is linked with a resident's nutrient intake

Regardless of the setting, food is not the only aspect of foodservice that is important to the customer (Dube et al., 1994). Satisfaction with meals is dependent on both food quality and interpersonal aspects of the dining experience (Crogan, Evans, & Velasquez, 2004). Interpersonal aspects of the dining experience are often ignored in satisfaction investigations because they are difficult to quantify (Dube et al., 1994). Limited research has been conducted to measure service quality components among the elderly population (Fu & Parks, 2001). Hotaling (1990) suggested that attitudes of staff members can significantly improve or decrease the dining experience for residents of long-term care facilities.

Elderly individuals who live in long-term care facilities may feel as if they have lost their independence through institutionalization, eating disabilities, and therapeutic diets (Lilley & Gaudet-LeBlanc, 1992). This loss of independence may be difficult to accept because elderly individuals have been caring for themselves all of their lives, including planning their meals, cooking for themselves, and feeding themselves (Lilley & Gaudet-LeBlanc, 1992). Mealtime choices are individualized; however, when residents are required to conform to the routine of a nursing home facility, they no longer have as many choices (Kayser-Jones, 1996). Dube et al., (1994) defined "customization" as the patients' "possibility to choose appealing meals, possibility to choose healthful meals, clarity of menu presentation, portion size, conformity with menu choices, instruction about menu choices and flexibility in service hours." Dube, et al. (1994) indicated that customization was the second most important dimension, following food quality, when determining customer satisfaction with mealtimes.

Customers may evaluate service delivery and base patronage decisions on the organization's physical environment (Chang, 2000). Influence of the physical environment on

the customers' perceptions of the service quality is obvious in service organizations because the service is produced and consumed in this environment (Bitner, 1992). Individuals use their reactions when forming perceptions of service quality of an organization (Bitner, 1992). Chang (2000) found that customer satisfaction is significantly effected by client's perceptions of the organization's physical environment. However, healthcare providers frequently fail to recognize the importance of the environment on long-term care residents' dining experience (Hotaling, 1990) and satisfaction. Fu and Parks (2001) suggested that elderly individuals desire "to eat in a welcoming, pleasant, comfortable atmosphere." The environment also impacts the residents' nutrient intake (Hotaling, 1990), contributes to residents' overall nutrition (Hiatt, 1981), and can affect their quality of life (Brush et al., 2002). However, there is limited research showing the impact of environmental changes on long term care residents' satisfaction (Brush et al., 2002).

Focus groups are a qualitative research method used to explore and discover information about topics among groups of people who have limited research conducted about them (Morgan, 1998). Morgan (1998) defined focus groups as "group interviews" using a moderator to guide the group discussion about a specific topic. Focus groups can provide the researcher information regarding attitudes, behaviors, and needs of a specific issue by observing group interactions that may not have been retained through other methods such as surveys or individual interviews (Loeb, Penrod, & Hupcey, 2006). Focus groups can also be used to determine customer satisfaction with services provided (Loeb et al., 2006). Focus groups can assist researchers "to learn the language of the respondents" which can be helpful in developing survey questions (Easton, 1999, p. 212). Additionally, focus groups are a data collection method that has been shown to have high face validity (Easton, 1999).

The use of focus groups among the elderly is becoming more popular. The increasing body of literature regarding focus groups with older adults illustrates that this research method is both efficient and effective in obtaining data from this population (Loeb et al., 2006). It has also been shown that elderly individuals enjoy participating in focus groups because it gives them an opportunity to voice their opinions (Loeb et al., 2006).

Several studies have used focus groups in determining residents' perceptions of quality mealtimes in long-term care facilities. Lee (2002) conducted focus groups in two continuing care retirement communities (CCRC) and found that residents had positive comments about special occasions and the dining room environment. Common complaints were lack of variety of

menu items, inconsistency of food items, limited choices, poor food quality, inflexible service times, and lack of choices for special diets. Residents also identified the following characteristics of an excellent foodservice: trained staff who were neat and clean, a variety of foods, mealtime choices, quality food, food served at the appropriate temperature, attractive presentation of meals, respectful and friendly staff members, and convenient operating hours (Lee, 2002).

Seo and Shanklin (2005) conducted focus groups in three continuing care retirement communities to evaluate residents' perceptions of food and service quality. Residents stated that attributes that affect their perception of food quality were freshness of ingredients; variety of menu items; foods served at the appropriate temperature; flavor, taste and texture of foods; attractiveness of meal presentation; and consistency of food quality (Seo & Shanklin, 2005). Two of the focus groups identified flavor and taste of foods as the most important attribute; the other focus group identified freshness of ingredients as the most important attribute affecting food quality. Service quality perceptions were most affected by the following attributes: attentiveness of staff members to resident needs, properly trained service staff, appearance of staff members, and timely service of meals. All three facilities listed a different attribute that most affected their perceptions of service quality. In one facility, residents identified attentiveness of the service staff as the most important; residents at another facility mentioned personal hygiene of staff members and correct service skills were the most important, and residents in the third facility noted that a clean appearance of staff members and proper food handling skills were the most important service attributes (Seo & Shanklin, 2005).

These studies indicate that attributes of the dining experience are important to residents of long-term care facilities. However, attributes that are the most important to residents differ among facilities.

Methodology of the Focus Groups

The population of this study was residents in assisted living facilities located within a 110-mile radius of the research institution. The distance from the research institution was determined by considering the driving distance to the assisted living facilities and available funding to support the research. The Directory of Kansas Assisted Living Facilities (2006) that is published and updated monthly by the Kansas Department on Aging was used to determine the

number of free-standing licensed assisted living facilities within a 100-mile radius of the research institution. According to the August 2006 edition of The Directory of Kansas Assisted Living Facilities, 28 facilities were located within a 100-mile radius of the research institution, which included 1127 licensed beds. Assisted living facilities that are a part of continuing care retirement communities (CCRCs) were excluded from this study because it is difficult to obtain a comprehensive list of all licensed assisted living facilities included in CCRCs.

The Institutional Review Board of the research university approved the protocol of this study. Three facilities from the sampling frame were randomly selected to conduct focus groups. Administrators of these facilities were contacted via telephone and asked to participate in the study. Residents of facilities for which administrative permission was attained were asked to participate in the focus groups. If the administrators did not agree to be involved in the project, another facility within the population was randomly selected and requested to participate.

Administrators and nursing staff assisted the researcher in selecting residents to participate in the focus groups. Five to nine residents from each facility participated in the focus groups. The researcher welcomed the residents and described the purpose and objectives of the focus group to the residents. The researcher explained that the focus group was voluntary and that if for any reason, the residents felt uncomfortable at anytime during the discussion, they could excuse themselves without repercussions. Anonymity and confidentiality of the data were discussed. Each participant received two copies of the consent form (Appendix B). The researcher read the consent form to the participants to ensure their understanding of the form before they signed it. One consent form was signed, dated, and returned to the researcher. The other copy of the consent form was retained by the participants for their records. The researcher explained the focus group procedure to the residents, which indicated that the researcher would ask a question and allow residents to discuss the topic. Demographic information was obtained from the residents including gender, marital status, living status (living alone or with spouse), age, length of residence in assisted living facility, education level, and frequency of dining in assisted living facility. Focus groups lasted approximately 45 to 60 minutes. The focus group for Facility A was completed at 3:00 p.m. prior to the dinner meal; the focus groups for Facilities B and C were completed at 9:00 a.m. after the breakfast meal. Focus group times were decided by the administrators and were scheduled so that the focus groups would not interfere with other activities planned for the residents and to facilitate residents' participation. Focus groups were

held in meeting rooms or a private section of the dining room so that participants were not distracted. The researcher moderated the focus groups by asking a series of eight questions regarding mealtimes. These eight questions included the following (Appendix A):

1. Please describe specific mealtime experiences at this facility that you really like.
2. Please describe specific mealtime experiences at this facility that you really do NOT like.
3. In your opinion, what features should be provided for an excellent dining experience?
4. What features of the actual food served at mealtimes do you feel contribute to quality food?
5. What characteristics of the service staff in the dining room affect your perceptions of your dining experience?
6. What choices regarding mealtimes are important to you?
7. Why are choices regarding mealtimes important to you?
8. What aspects of the dining room environment impact your perceptions of your dining experience?

The discussion between the participants and the researcher was tape recorded, and notes were recorded by an undergraduate research assistant. Participants were informed and allowed to voice objections to the tape recording. No residents presented objections of being tape recorded. The research assistant transcribed all of the focus groups, and attributes were compared among residents of different facilities.

Results and Discussion

Profile of Assisted Living Facilities

Table 4.1 illustrates the profile of the three facilities that participated in the focus groups. The three facilities were located in cities with different population density. The number of residents residing in each facility was similar; Facility B had the largest with 31 residents. However, the capacity percentage ranged from 60% to 91.6%. Facility A had the highest occupancy at 91.6% and Facility C, the lowest with 60.6% occupancy. The staffing ratio during mealtimes for Facility A was four residents per staff member, whereas, the staffing ratio for Facilities B and C were seven residents and eight residents, respectively. Facilities B and C provided all three meals per day to residents as part of their monthly rent. Facility A included only the lunch meal in the monthly rent and provided the option of purchasing additional meals

Table 4.1-- Profile of Facilities Participating in Focus Groups

	Facility A	Facility B	Facility C
Population of City	700-800	4,000-5,000	50,000
Number of Residents	22	31	24
Number of Licensed Beds	24	37	40
Capacity Percentage	91.6	83.7	60
Staffing Ratio during mealtimes	4 residents per staff member	7 residents per staff member	8 residents per staff member
Meal Plans Offered	Lunch included in monthly fee, additional meals can be purchased for extra fee per month	All meals included in monthly fee	All meals included in monthly fee
Style of Meals	Buffet	Plated with some a la carte items (salad, soup)	Plated
Length of Cycle Menu	4 weeks	5 weeks	4 weeks
Person Responsible for Menu Planning	Foodservice Director	Foodservice Distributor	Consultant Dietitian
Credential of Menu Planner	Registered Dietitian	Registered Dietitian	Registered Dietitian
Resident Cost/Month[a]	$1,940-$2,775	$3,000	$2,195-$3,900
Food Cost/Patient Day	$4.71	$3.00	$3.50-$4.50
Foodservice Management	Self-Operated	Self-Operated	Self-Operated
Facility Management	Self-Operated	Self-Operated	Self-Operated
Prime Vendor Contract	Yes	Yes	Yes

[a] Resident cost per month is listed as a range because the cost depends on the level of care provided to an individual resident and the type and size of the apartment that the individual resides.

from the facility. Facility A provided buffet style meals, where facility B and C provided plated meals for residents. All three facilities used a cycle menu that was planned by a registered dietitian. Facility A and C had a four week cycle menu, whereas, Facility B had a five week cycle menu. The resident cost per month varied among facilities and ranged from $1,940 to $3,900. The resident cost per month depended on the level of care residents received and the size of apartment that they rented. The food cost per patient day also varied among facilities with the highest food cost being $4.50 in Facility C and the lowest food cost being $3.00 in Facility B. Both the facility and the foodservice were self-operated at all three facilities. All three facilities purchased from a prime vendor.

Profile of Focus Group Participants

The demographic profile of residents from the three facilities participating in the focus groups can be found in Table 4.2. Overall, a total of 22 residents participated in the three focus groups; 5, 8, and 9 participated in facility A, B, and C, respectively. A majority of the residents who participated in the focus groups were female (68.2%). A majority of the residents participating in the focus groups were widowed (63.7%). The highest level of education attained by a majority of participants was high school (72.7%). The average age of the residents was 83 years with a range of ages of 68 to 96 years. The average length of residence at the assisted living facilities was 2.2 years with a range of 0.1 years to 5.8 years.

Focus Group Results

The first question asked by the researcher during the focus group was "Please describe specific mealtime experiences at this facility that you really like." One attribute of the dining experience that was discussed by residents from all three facilities was the socialization at mealtimes with other residents and staff members. One resident stated "we have discussions at mealtimes. It's good to get to know people at mealtimes that live here." Another resident stated "the interaction of the staff was good. It's wonderful to be able to interact with them and not be afraid of them. It's nice to have fun with them." Another quality of mealtimes that was important to several of the residents was celebrating special occasions, such as holidays and birthdays at mealtimes.

Table 4.2—Profile of Residents Participating in Focus Groups

	Total (N=22)	Facility 1 (N=5)	Facility 2 (N=8)	Facility 3 (N=9)
Gender				
Females	15	4	5	6
Males	7	1	3	3
Marital Status				
Single	1	0	0	1
Married	4	2	2	0
Widowed	14	3	6	5
Divorced	3	0	0	3
Education				
Elementary School	1	0	1	0
High School	16	5	5	6
Bachelor Degree	3	0	2	1
Master Degree	1	0	0	1
Doctorate Degree	1	0	0	1
Age (Average/Range)	83 (68-96)	80 (71-89)	86 (77-96)	81 (68-89)
Length of Residency- years (Average/Range)	2.2 (0.1-5.8)	3.5 (0.1-5.5)	2.4 (0.7-5.8)	1.2 (0.3-2.8)

The next question asked by the researcher during the focus group was "please describe specific mealtime experiences at this facility that you really do not like." One attribute of mealtimes that residents disliked was frequency of substitutions made to the menu and the fact that substitutions were not discussed with the residents prior to meal service. One resident stated "well, I'd like to say something about them making substitutions. For example, last night we were supposed to have bread sticks. Well, they brought me a slice of bread. If I had known that, I wouldn't have ordered bread. That happens frequently…. they need to come and ask us ahead of time." Another item mentioned was that there were not enough menu choices for residents on special diets, such as diabetic, low cholesterol, and low sodium diets. One resident stated "we have a hard time getting choices for diabetics…Well, the food comes from the kitchen in the hospital. You'd think that they would have more choices in the hospital where they cook for all different kinds of diets. I know they have to allow for that."

Residents were asked to identify what should be provided for an excellent dining experience. Having interaction with the dietitian that plans the menus was expressed by several residents as being important for a quality dining experience. One resident stated "I'm really concerned about the nutritional quality of the meals and whether there is anyone watching this…I would like to have contact and have things explained to me and let us know if someone is looking out for us. Specifically, for the needs of the residents. Or if the dietitian's job is more for keeping us [the facility] out of serious trouble."

The residents then discussed "what features of the actual food served at mealtimes do you feel contributes to quality food." Many of the residents discussed the importance of the taste of food, consistency of products, temperature of food, and texture and tenderness of food. One resident discussed the importance of consistency of food products. "Well, we have two cooks. One seems to burn things quite a bit and then other times we have food that is taken out of the deep freeze and hasn't been thawed…Which isn't very nice." Another resident commented on temperature of foods stating "once in awhile you'll have something come out cold that shouldn't be. But not too bad though…They take temperatures of stuff." Another attribute of food that residents identified as being important included the attractiveness of the presentation of food. One resident commented on things she likes to see in the food that is served to her. "A dish that is served that looks nice, and it's done and you don't have to be afraid of what you're eating."

Variety of foods specifically meats and vegetables was another quality of food that was discussed by several residents as being important.

Service quality attributes that residents identified as being important were then discussed. Residents identified courteous and friendly staff during mealtimes, staff that is responsive to the residents' needs, well-trained staff members, and staff members having a clean and neat appearance. One resident commented about the staff members during mealtimes, "they are pleasant. Their attitudes. They have a wonderful attitude. They understand the older people, and I have been around people who don't and they wouldn't be good here." Another resident discussed the helpfulness of the staff members during mealtimes as being important to her. "They always help you when you need help. They are right there to help you." When discussing a clean and neat appearance for staff members, one resident commented "Well, sometimes they put them into uniforms that don't make the person look too whippy sometimes. And I think that's too bad. Well, if they would use an old flat iron once in awhile or hang them up and let them air dry it would help. I think the cooks should wear an apron, because the flour and the gunk all over them sometimes doesn't look good." Another resident commented, "I don't want to see anyone around food that is not clean." Another quality of the service staff that some residents found to be important was that they implemented food safety practices. One resident commented that she liked the fact that the staff used gloves by saying, "it keeps germs away. They wash their hands and everything, but I think it's nice that they use gloves as well when they handle food."

Customization of mealtimes was also discussed with the participants. Residents found having an alternate choice at meals, being able to choose portion sizes, having the option to store food in their rooms, choosing their seat in the dining room, and having the choice to save meals in order to keep appointments were important to residents at all three facilities for a quality dining experience. Being able to choose when meals are served was identified as being important to residents. When discussing the choices regarding portion size, one resident commented "This is just personal. I sometimes think they serve us too much. We have a big meal at lunch and then at dinner… I just feel guilty leaving food on my plate. It's just a sin. I feel like I'm committing a sin every time I sit down at the table when I don't eat it all." Another resident commented that she liked the flexibility in mealtimes so that she could keep appointments and she stated "When I get my hair done they save a tray for me."

Many residents stated that choices were important to them because they believed it keeps them healthier, allows the residents to adjust for allergies and food preferences, and it made the facility more home-like. One resident stated when speaking of the importance of choices, "this is like family or home. It's not like an institution or jail."

The attributes that influenced the quality of the dining room environment were the last discussion items. Attributes that were important for a quality dining experience identified by focus group participants included attractive room decorations, space to accommodate guests, being comfortable in the dining room, cleanliness of the dining room, absence of distracting noise, and having an attractive table setting. One resident commented "It's important wherever food is cooked or served, that it's clean." Another resident commented "Everything is meticulously clean. That is very important. They wash each table after every meal. They also run the vacuum after each meal. I like that." When discussing room décor, one resident stated "We have flowers on our table… Table setting is nice and silverware is wrapped up in a napkin so that we are ensured that it is clean." One resident expressed dissatisfaction about the level of distracting noise coming from the kitchen. Other items that were discussed as being important to some of the residents were the dining room at the appropriate temperature; cleanliness of china, silverware, and glassware; the dining room having a pleasant aroma; appropriate lighting in the dining room; and a home-like dining room environment. When discussing the importance of the dining room temperature, one resident commented "Sometimes the temperature doesn't agree with someone and they change the temperature to please everyone." Another resident commented "Well, the air conditioning is right above our table and we feel a draft of cold air above us all of the time." Many residents discussed that they enjoy the pleasant aroma of food cooking in the dining room. However, one resident commented "that burnt smell is awful."

Summary and Conclusions

Participants in all three facilities commented on specific attributes of food quality, service quality, customization, and dining room environment. A majority of the attributes of the four constructs were discussed by participants in all three focus groups. Table 4.3 summarizes specific attributes of each of the four constructs that were discussed among participants in each of the facilities involved in the focus groups. Taste of food, consistency of products, temperature of the meals, food for special diets, and appropriate texture of the food were food quality

Table 4.3—Specific Attributes of Four Constructs Discussed in Three Focus Groups

Construct & Attributes	Facility A	Facility B	Facility C
Food Quality			
Variety of Foods	X		X
Seasoning/Taste of Foods	X	X	X
Consistency of Product	X	X	X
Temperatures	X	X	X
Foods for Special Diets	X	X	X
Texture	X	X	X
Nutritional Value		X	X
Variety of Preparation Methods		X	X
Presentation of Food			X
Service Quality			
Socialable Staff	X	X	
Courteous/friendly staff/ Pleasant attitude	X	X	X
Helpful staff/Responsive to Needs	X	X	X
Well-Trained	X	X	X
Respectful	X		
Clean/Neat Appearance	X	X	X
Food Safety	X		
Consistent with serving			X
Level of Customization			
Alternate Choice	X	X	X
Choice of prep method	X		
Choices for special diets	X	X	X
Portion Size	X	X	X
Time meals Served	X	X	
Keep Food in Room	X	X	X
Making Meals in Apt.	X		
Saving meal if have an Appointment	X	X	X
Choice of where to sit	X	X	X
Input into the menu		X	
Environment			
Room Decorations	X	X	X
Extra Space for Guests/ Not Crowded	X	X	X
Temperature	X		X
Comfortable Chairs	X	X	X
Feeling Safe in Chairs	X		

Table 4.3— Specific Attributes of Four Constructs Discussed in Three Focus Groups (continued)

Construct & Attributes	Facility A	Facility B	Facility C
Environment (continued)			
Cleanliness of Dining Room	X	X	X
Cleanliness of Silverware, Glassware, china	X		X
Limited Distracting noise	X	X	X
Pleasant Scent	X		X
Nice Table Setting/Table Décor	X	X	X
Home-like Environment		X	X
Lighting		X	X
Entertainment (music)			X
Other			
Socialization of Mealtimes	X	X	X
Celebrating Special Occasions	X	X	X
Contact with Dietitian	X		X
Knowing about substitutions in advance		X	X
Clear description of food on Menu			X

characteristics that were identified by participants in all three facilities. Service quality attributes that were discussed by residents in all three facilities were staff who were courteous and friendly, helpful and responsive to the residents' needs, and well-trained. Having adequate choices for special diets, having a choice of portion size and where to sit in the dining room, being able to keep food in resident rooms, having the choice to choose an alternate food item, and accommodating for appointments were characteristics of customization that the residents in all three facilities stated. Dining room environment attributes that were discussed by participants in all three facilities included attractive room decorations, room to accommodate guests, dining room cleanliness, and absence of distracting noise. Other attributes that were discussed by residents of all three facilities that did not fall into one of the four constructs included the importance of socialization at meals and celebrating special occasions such as holidays and birthdays at mealtimes. However, some attributes that were found to be important to the residents differed among facilities. This may indicate that resident expectations differ among facilities or that certain facilities meet residents' expectations more than other facilities.

These focus groups provide important feedback to administrators, foodservice directors, and dietitians of assisted living facilities. The residents of these facilities clearly communicated that there are requirements of the dining experience that must be met to satisfy them. Some residents identified more attributes of mealtimes that were important to them than other residents. However, most focus group participants agreed that attributes of food quality, service quality, customization of the mealtime, and the dining room environment were important factors that affected their satisfaction with the dining experience. Satisfaction with the dining experience may also affect resident satisfaction with the facility in general. Therefore, it is important for administrators, foodservice directors, and dietitians to improve areas of the dining experience that may not be satisfactory to the residents. The feedback from these focus groups give management and staff members information about what is important to the residents and specific problems related to the foodservice in assisted living facilities. This information can then be used to improve areas of the dining experience; thus improving resident satisfaction.

Administrators, dietitians, and foodservice directors of assisted living facilities can use the information gained from the focus groups in this study to evaluate the dining experience in their facilities. The attributes that were discussed as being important to the residents in these facilities should be assessed and used as a benchmark to determine what areas of a particular

facility need to be improved. Dietitians who plan menus for assisted living facilities need to focus on providing a variety of nutritious foods. Foodservice directors should concentrate on providing foods at the correct temperature and texture. It is also important for the meals to taste good and be pleasantly presented. Administrators and foodservice directors should hire foodservice staff that are friendly, helpful, and responsive to the needs of the residents. Also, foodservice staff members should be well-trained in service skills and providing for the elderly. Residents found mealtime choices very important. Foodservice directors should maximize level of customization for the residents during mealtimes. Foodservice directors could provide the residents choices regarding portion size, where to sit in the dining room, and choosing an alternate food item. Administrators and foodservice directors should pay close attention the dining room environment. Areas that could easily be improved to increase the residents' satisfaction of the dining room environment include limiting distracting noise during mealtimes, purchasing attractive room and table decorations, keeping the dining room clean, and providing extra space to accommodate for residents' guests.

Limitation and Future Study

A limitation of this study is that these results cannot be generalized to residents in other assisted living facilities since the focus groups were only conducted in three assisted living facilities in a Midwestern state. Further research should be conducted in assisted living facilities of other regions of the United States and compared.

Administrators and nursing staff members who assisted the researcher in selecting residents to participate in the focus group discussions may have been biased when selecting the residents. Administrators may have chosen residents who were less likely to complain about the foodservice to give the facility a good appearance. Administrators may also have chosen residents who are more vocal in general to facilitate discussion among group members.

Focus group discussions with the elderly population are a useful tool in determining what attributes of the dining experience are important to them. However, there are some limitations to using focus groups with the older population. Focus group discussions required residents to be able to understand the questions being asked of them. Therefore, residents with mental health problems such as Alzheimer's Disease and/or dementia were excluded from this study. Also, physical limitations such as poor hearing may have decreased the willingness to volunteer to

participate in the focus group discussions. Residents also may not have wanted to complain about issues because they may have worried about repercussions if staff members discovered what residents had discussed.

Results of the focus groups were used to revise Huang's (2004) questionnaire and included items related to customization, dining environment, and other attributes identified by participants. This questionnaire was administered in assisted living facilities to assess resident's satisfaction with the dining experiences in Phase II of this study.

Future research should also be conducted to evaluate the affect of customer satisfaction with these specific attributes on assisted living residents' food intake and nutritional status. Research could also be done to discover if resident satisfaction with dining experience affects quality of life among assisted living residents and their intention to recommend the facility to others.

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CHAPTER 5 - FACTORS INFLUENCING RESIDENTS' SATISFACTION WITH THEIR DINING EXPERIENCE IN ASSISTED LIVING FACILITIES

Introduction

Elderly and Long-Term Care in the United States

The elderly or those aged 65 years or older represented 12.4% of the U.S. population or 35.9 million people in 2003 (Administration on Aging [AOA], 2004). According to the AOA (2004), the elderly population is expected to continue to increase in the future. By 2030, the elderly population is predicted to increase to 20% of the U.S. population or 71.5 million people (AOA, 2004).

Long-term care will be required by approximately 12 million people by the year 2020 (American Association of Homes and Services for the Aging [AAHSA], 2005). Currently, several housing options are available to meet the needs of the elderly. Assisted living is a housing option for the elderly that need some assistance but not the medical and nursing assistance that is required for residents of nursing homes (National Center for Assisted Living [NCAL], 2001). Currently more than a million Americans live in assisted living facilities (Assisted Living Federation of America [ALFA], 2006), and assisted living facilities are becoming more popular (Chao & Dwyer, 2004).

Foodservice in Long-Term Care

Food and foodservice are important considerations in assisted living facilities because elderly individuals reside in these facilities for years (Chao & Dwyer, 2004). Providing adequate nutrition to the elderly population is one of the greatest challenges in long-term care (Kayser-Jones, 1996). Malnutrition is common among long-term care residents (Kayser-Jones, 1996). Adequate nutrition is important for an individual's overall health. Therefore, malnutrition can cause detrimental declines in the elderly, such as weight loss, confusion, weakness and skin breakdown (Roberts & Durnbaugh, 2002).

Past research has investigated residents' perceptions of food quality (Crogan, Evans, Severtsen, & Shultz, 2004; Dube, Trudeau, & Belanger, 1994; Evans, Crogan, & Shultz, 2003; O'Hara, Harper, Kangas, Dubeau, Borsutzky, & Lemire, 1997;) and service quality (Crogan, Evans, Severstен & Shultz, 2004; Dube et al., 1994; Evans et al., 2003) in nursing homes and acute care settings. Food quality was found to be the most important dimension of the meal service for patient satisfaction (Dube et al., 1994). Crogan, et al. (2004) suggested that quality food can enhance long-term care residents' quality of life. One study indicated that more than half of the sampled residents stated they received food that they did not like (Evans & Crogan, 2005). Although food quality has been found to be the most important dimension of foodservice, it is not the only factor that affects residents' perceptions of the mealtime. Lee (2002) reported that service quality attributes affected customer satisfaction rating among CCRC independent living residents. Lee, Shanklin, and Johnson (2003) conducted focus groups with residents living in continuing care retirement communities (CCRCs). Residents participating in the focus groups indicated that both the food and service quality were essential when they evaluated foodservice at a CCRC. Evans et al. (2003) found that many service quality attributes were important to them to foster a satisfying dining experience. Crogan, Evans, and Velasquez (2004) reported that service quality or "interpersonal aspects" can influence satisfaction with foodservice in long-term care facilities. Huang (2004) discovered that service quality scores were often higher than food quality scores among assisted living residents, and concluded that perceived quality had a significant effect on satisfaction with foodservice. Seo (2004) reported similar findings where CCRC independent living residents rated service quality attributes higher than food quality attributes.

Previous research has explored the level of customization regarding meals in acute care settings (Dube et al., 1994) and nursing homes (Evans et al., 2003; Evans, Crogan, & Shultz, 2005) and its influence on satisfaction. Dube et al. (1994) found customization was the second most important construct, following food quality, when determining patient satisfaction with the mealtime. Evans et al. (2003) also found that mealtime customization attributes, such as choosing food and surroundings, were important to long-term care residents.

Past research has investigated the affects of the dining room environment on customer satisfaction in restaurants (Fu & Parks, 2001) and food consumption of special elderly populations such as those with dementia and dysphagia (Brush, Meehan, & Calkins, 2002;

Hicks-Moore, 2005). Hiatt (1981) suggested that the dining room environment may play an important role in the nutritional status of long-term care residents. However, the impact that environmental factors have on the residents' dining experience may be often overlooked (Hotaling, 1990). Fu and Parks (2001) reported that the elderly prefer to dine in a restaurant with a "welcoming, pleasant, comfortable atmosphere." However, there is a paucity of research in assisted living facilities that examines the affect of food quality, service quality, the level of customization, and dining room environment on satisfaction of residents.

Instruments to Measure Satisfaction in Senior Living Facilities

Crogan, Evans, and Velasquez (2004) developed FoodEx-LTC, a 44 question, 5-domain instrument that measured resident satisfaction with the food and foodservice in nursing homes. The five domains included enjoying food and foodservice, exercising choice, cooking good food, providing good foodservice stated in negative terms, and providing good foodservice stated in positive terms (Crogan, Evans, & Velasquez, 2004). Lee et al. (2003) developed a service quality measurement instrument for residents in continuing care retirement communities (CCRCs). This instrument was based on six dimensions of service quality, five of which were adapted from SERVQUAL. These dimensions included assurance, empathy, food, reliability, responsiveness, and tangibles (Lee et al., 2003). Huang (2004) developed an instrument to assess assisted living residents' perceptions of food and service quality, satisfaction with the foodservice, and their behavioral intentions to dine in the foodservice. Huang (2004) found that perceived quality had a significant effect on satisfaction with foodservice. Perceived quality and customer satisfaction with foodservice among assisted living residents also had a significant, direct impact on the residents' food consumption (Huang, 2004).

Roberts and Durnbaugh (2002) suggested that when mealtimes are an enjoyable experience, residents' food intake and nutritional status improve. Thus, improving the dining experience for these residents can enhance their quality of life (Brush et al., 2002; Crogan, Evans, Seversten & Shultz, 2004). Mealtimes are especially important for long-term care residents; this is evident when residents plan their daily activities around meals (Beck, 1981). However, West, Ouellet, and Ouellette (2003) stated that residents in long-term care facilities "rate food and foodservice less than satisfactory."

Purpose and Objectives

The purposes of this study were to explore factors associated with the dining experience in assisted living facilities and determine the influence that these factors had on perceptions of quality and resident satisfaction with their dining experience. The importance of four dining experience factors: food quality, service quality, customization, and dining environment were assessed by assisted living residents. The specific objectives of this study were (1) to determine specific attributes of food, service, resident choice, and environment that affect assisted living residents' quality perceptions of their dining experiences, (2) to ascertain the affect of assisted living residents' quality perceptions of food, service, resident choice, and environment on resident satisfaction with the dining experience, and (3) to investigate the relationship between residents' perceptions of quality and resident satisfaction with the assisted living facility.

Although the four constructs in this study have been investigated separately in previous studies, they have not been explored collectively. Most research regarding food quality and service quality attributes has been conducted in nursing homes. Mealtime customization research has mostly been done with acute care patients. Some research regarding choices during mealtimes has been conducted in nursing homes. However, only specific attributes were explored, and the customization construct was not examined collectively in long-term care. Most research regarding the dining room environment in long-term care facilities has been conducted with special elderly populations. Limited research in all four of these areas has been done with assisted living residents. Limited research has examined customer satisfaction with the dining experience in assisted living facilities. This research is designed to address these gaps in the literature.

Hypotheses

The following hypotheses were developed to accomplish the objectives of this study:

H1: Residents' perception of food quality has a positive influence on residents' satisfaction with the dining experience.

H2: Residents' perception of service quality has a positive influence on residents' satisfaction with the dining experience.

H3: Residents' perception of the level of mealtime customization has a significant influence on residents' satisfaction with the dining experience.

H4: Residents' perception of the quality of servicescape has a positive influence on residents' satisfaction with the dining experience.

Methodology

Population and Sample

The population for this study was residents living in assisted living facilities within a 110-mile radius of the research institution. This radius was determined by considering funding available to support the project. Continuing care retirement communities (CCRC) were excluded because of the difficultly in locating a directory that listed licensed assisted living facilities within CCRCs. The Directory of Kansas Assisted Living Facilities (2006) was used to determine the number of licensed facilities within the sampling frame. The August 2006 edition of the Directory of Kansas Assisted Living Facilities listed 28 facilities in the 110-mile radius; these facilities had a total of 1127 licensed beds.

The sample for this study was determined by randomly selecting 16 facilities from the 28 facilities. The number of facilities needed to participate was determined by looking at the average number of residents in the facilities and considering the response rate from other studies of assisted living facilities. The researcher called the administrators of the selected facilities to ascertain their participation in the study. If administrators agreed to participate, the residents of these facilities became part of the sample. If administrators declined to participate, the researcher randomly selected another facility to replace that facility and called the administrator and requested their willingness to participate.

Instrument Development

The constructs explored in this study were food quality, service quality, customization of meals, and dining room environment; specific variables for each construct are described below. Attributes of food quality included: taste of food, variety of menu choices, preparation methods, frequency of menu items served, temperature of food served, quantity of food served, presentation of meals served, consistency of taste, appearance, and overall quality of food served. Characteristics of service quality were attitude of service staff, promptness of service,

appearance of service staff, adequate staffing, and competency of staff. These two sections of the questionnaire used items from the instrument developed by Huang (2004).

The construct of customization measured the residents' ability to choose food that they enjoy, dining location, portion size, and service hours. Dube et al. (1994) investigated these attributes of customization among patients in an acute care setting. Environmental factors were ambient conditions, including room temperature, lighting, noise, music, and scent of the dining room; spatial layout, including comfort of seating, closeness to other patrons, and table height; signs, symbols, and artifacts, including tablecloths, dining room décor and furniture, china, silverware, and glassware; and cleanliness of tables and chairs, walls, and floors in the dining room. These environmental components are known collectively as servicescape (Bitner, 1992).

Prior to pilot testing the instrument, focus groups were conducted in three assisted living facilities to confirm that all variables related to the constructs being measured had been identified by previous researchers. Measurement items were developed for variables not previously identified by assisted living residents; these items were included in the questionnaire.

A pilot test was conducted with residents in two assisted living facilities within the population to evaluate the reliability and validity of the instrument. Two forms of the questionnaire were distributed to residents in these facilities. Form A contained items that were clustered for each construct. Form B contained the same items, but the items were randomized. Two forms of the questionnaire were distributed to assess variances in response patterns of the clustered items versus the randomized items.

Data was entered into SPSS for windows and statistical analysis tested the reliability of the instrument. Form A (food quality α=0.8146, service quality α=0.5914, customization α=0.8663, environment α=0.8346) was more reliable than Form B (food quality α=0.7079, service quality α=0.6913, customization α=0.7923, environment α=0.7351) for all constructs except for the service quality construct. Reliability was also higher for Form A than combined reliability of Form A and Form B (food quality α=0.7892, service quality α=0.6565, customization α=0.8307, environment α=0.7853) for all constructs except for the service quality construct. Frequency distributions for Form A and Form B of the questionnaire were also run separately in SPSS. Frequency distributions showed that there was no central tendency in the responses on either form; the responses were evenly distributed. Therefore, no halo effect or response pattern was detected for measurement items clustered into constructs. Form A was

selected based on its higher Cronbach's alpha. This format also simplified the cognitive response demand since residents would rate all items related to each construct before proceeding to the next construct. Cronbach alpha was also run for the final questionnaire. The Cronbach alpha for all four constructs was higher for the final questionnaire than for the pilot test questionnaires.

Data Collection

Administrators of the participating facilities were contacted and an initial appointment was arranged with the researcher. During the initial meeting with the administrator, the researcher explained the research process, gathered information about the facilities, and determined the best time to distribute the questionnaires to the residents. Information about the project was placed in the facility's newsletter. Administrators were contacted again to schedule a date to distribute the questionnaires. One week prior to the questionnaire distribution, reminder postcards explaining the project were sent to the residents. The researcher and a research assistant distributed questionnaires to the residents at the time specified by the administrators and were available to assist the residents in completing the questionnaire. If questionnaires were not completed the day that the researcher was present, a self-addressed, paid postage envelope was provided to the resident to mail the completed questionnaire to the researcher.

Data Analysis

Data analysis was conducted using SPSS for Windows. Descriptive analysis was conducted to assess the data and generate a demographic profile of the sample. Differences in satisfaction with the overall dining experience, food served, services, amount of choices, dining room atmosphere, and overall facility were analyzed using t-tests and ANOVA. Composite means for food quality, service quality, mealtime customization, and dining room environment were calculated and differences were assessed based on demographics, size of facility, and location of facility using t-tests and ANOVA. Multiple regression analysis was used to determine the influence of residents' perceptions of the four constructs on residents' satisfaction with the overall dining experience. Stepwise regression analysis was used to assess the impact of quality attributes on residents' satisfaction.

Differences among facilities based on the number of residents and location of facility (rural versus urban) were analyzed. If differences among facilities were found, t-tests and

ANOVA were used to explore the differences between groups. Differences in satisfaction based on residents' characteristics such as age, gender, resident's perceived health status, and length of residence in assisted living facility, education level, and marital status were analyzed. Composite means for quality attributes were also calculated and compared among the four constructs. Differences in resident ratings for quality attributes were evaluated based on demographic data. For age, differences were assessed among residents aged less than 79 years, 80 to 89 years, and greater than 90 years. For marital status differences were evaluated among residents who were single, married, widowed, and divorced. For length of stay, differences were assessed among residents who resided in the facility 12 months or less, 13 to 48 months, and greater than 48 months. For education level, differences were analyzed between residents who had completed a high school education or less and those who had completed some level of college education. Differences in satisfaction based on perceived general health were analyzed using two categories: those who rated their health status lower than the median rating and those who rated their health higher than the median rating. Differences in satisfaction were also assessed based on size of the facility and location of the facility. For size of facility, two categories were used: facilities with less than the median number of residents per facility and facilities with more than the median number of residents per facility. For location of the facility, differences were assessed based on the city population where facilities were located. Facilities located in a city with a population of 10,000 or greater were considered urban facilities, and facilities located in cities with a population less than 10,000 were considered rural facilities.

Results and Discussion

Demographic Profile

Table 5.1 illustrates the profile of the 16 participating facilities. Seven facilities were located in urban areas (population ≥ 10,000) and nine facilities were located in rural areas (population < 10,000). The number of residents residing in each facility ranged from 13 to 95, and the capacity percentage ranged from 60% to 96%. All facilities included three meals per day in the residents' monthly rent with the exception of Facility A which only included lunch in the monthly rent. All facilities utilized a cycle menu; however, the length of the cycle menu ranged from 4 to 12 weeks. A registered dietitian planned the menus in all 16 facilities. The food cost per patient day ranged from $3.00 to $5.55. All facilities and foodservice departments were self-operated.

Of the 492 residents in 16 facilities, 246 completed the questionnaire for a response rate of 50%. Table 5.2 illustrates the demographic profile of respondents. The average age was 84.26 ± 8.87 years, with a range of 37 to 101 years. The majority (52.7%) of participants were aged 80 to 89 years and most of the residents were female (74.3%). A majority of the residents were widowed (65.9%) and lived alone in their assisted living apartments (87.4%). Many residents (78.2%) had a high school education or less. A majority of the residents (78.7%) had lived in the facilities three years or less. The length of stay ranged from 1 to 134 months with the average length of stay of 25.24 ± 24.86 months. The majority of participants ate lunch (91.1%) [6.79 ± 0.89] and dinner (89.4%) [6.76 ± 1.03] in the dining room seven days a week. Fewer participants (82.9%) ate breakfast [6.19 ± 2.12] in the dining room daily, and 8.9% of participants never ate breakfast in the dining room.

Resident Satisfaction

Table 5.3 illustrates mean ratings for resident satisfaction. Satisfaction with services (3.95 ± 0.69) and dining room atmosphere (3.98 ± 0.64) were higher than food served (3.67 ± 0.91) and mealtime choices (3.58 ± 0.91). Satisfaction with foods served was rated higher than mealtime choices.

Table 5.1—Profile of Facilities Participating in Survey

	Facility #1	Facility #2	Facility #3	Facility #4
Population of City[a]	704	3,353	44,733	4,564
Number of Residents	22	31	24	13
Number of Licensed Beds	24 apartments	37	40	18
Capacity Percentage	91.6	83.7	60.0	72.0
Staffing Ratio during mealtimes	4 residents per staff member	7 residents per staff member	8 residents per staff member	4 residents per staff member
Meal Plans Offered	Lunch included in monthly fee, additional meals can be purchased for extra fee per month	All meals included in monthly fee	All meals included in monthly fee	All meals included in monthly fee
Meal Service	Buffet	Plated with some a la carte items (salad, soup)	Plated	Plated
Length of Cycle Menu	4 weeks	5 weeks	4 weeks	4 weeks
Person Responsible for Menu Planning	Foodservice Director	Foodservice Distributor	Consultant Dietitian	Cook, Consultant Dietitian
Credential of Menu Planner	Registered Dietitian	Registered Dietitian	Registered Dietitian	Registered Dietitian
Resident Cost/Month[b]	$1,940-$2,775	$3,000	$2,195-$3,900	$2,250
Food Cost/Patient Day	$4.71	$3.00	$3.50-$4.50	$3.81
Foodservice Management	Self-Operated	Self-Operated	Self-Operated	Self-Operated
Facility Management	Self-Operated	Self-Operated	Self-Operated	Self-Operated
Prime Vendor Contract	Yes	Yes	Yes	Yes

[a] City population was based on the most current information for specific cities based on the U.S. Census Bureau at www.censtats.census.gov/qfd/states/20000.html. Facilities located in a city with a population ≥ 10,000 were urban facilites; facilities located in a city with population < 10,000 were rural facilities.

[b] Resident cost per month is listed as a range because the cost depends on the level of care provided to an individual resident and the type and size of the apartment that the individual resides.

Table 5.1—Profile of Facilities Participating in Survey (continued)

	Facility #5	Facility #6	Facility #7	Facility #8
Population of City[a]	2,110	44,733	122,008	122,008
Number of Residents	16	46	95[b]	41
Number of Licensed Beds	22	65	99	41
Capacity Percentage	73.0	71.0	96.0	100.0
Staffing Ratio during mealtimes	4 residents per staff member during day; 8 residents per staff member at night	6 residents per staff member	10 residents per staff member	10 residents per staff member during day; 20 residents per staff member at night
Meal Plans Offered	All meals included in monthly fee	All meals included in monthly fee	All meals included in monthly fee	All meals included in monthly fee
Meal Service	Plated	Plated	Restaurant- order from table	Restaurant- order from table
Length of Cycle Menu	4 weeks (seasonal)	4 weeks	12 weeks	12 weeks
Person Responsible for Menu Planning	Foodservice Distributor, Consultant Dietitian	Consulting Dietitian	Foodservice Director and Senior Foodservice Director	Foodservice Director-National and Local
Credential of Menu Planner	Registered Dietitian	Registered Dietitian	Registered Dietitian	Registered Dietitian-National
Resident Cost/Month[c]	$2,585-$2,785	$2,200-$3,500	$2,900	$2,345
Food Cost/Patient Day	$4-$5	$4	$5.25	$5.25
Foodservice Management	Self-Operated	Self-Operated	Self-Operated	Self-Operated
Facility Management	Self-Operated	Self-Operated	Self-Operated	Self-Operated
Prime Vendor Contract	Yes	Yes	Yes	Yes

[a] City population was based on the most current information for specific cities based on the U.S. Census Bureau at www.censtats.census.gov/qfd/states/20000.html. Facilities located in a city with a population ≥ 10,000 were urban facilites; facilities located in a city with population < 10,000 were rural facilities.

[b] A total of 95 residents are in this facility. However, 30 residents live in an Alzheimer's unit and could not participate in the survey administration. Therefore, 65 residents participated in survey administration.

[c] Resident cost per month is listed as a range because the cost depends on the level of care provided to an individual resident and the type and size of the apartment that the individual resides.

Table 5.1—Profile of Facilities Participating in Survey (continued)

	Facility #9	Facility #10	Facility #11	Facility #12
Population of City[a]	947	122,008	1,121	3,034
Number of Residents	21	54	27	26
Number of Licensed Beds	22	60	33	42
Capacity Percentage	95.0	90.0	82.0	62.0
Staffing Ratio during mealtimes	7 residents per staff member	8 residents per staff member	9 residents per staff member	6 Residents per staff member
Meal Plans Offered	All meals included in monthly fee	All meals included in monthly fee	All meals included in monthly fee	All meals included in monthly fee
Meal Service	Plated	Restaurant Style-Plated	Plated	Plated
Length of Cycle Menu	4 weeks	4 weeks- seasonal	4 weeks	6 weeks
Person Responsible for Menu Planning	Consulting Dietitian	Foodservice Distributor Dietitians	Foodservice Distributor and corporate dietitians	Consultant Dietitian
Credential of Menu Planner	Registered Dietitian	Registered Dietitian	Registered Dietitian	Registered Dietitian
Resident Cost/Month[b]	$2,000	$2,450-$4,125	$2,225-$3,425	$2,220-$2,670
Food Cost/Patient Day	$5.25	$5.55	$4.50	$4.00
Foodservice Management	Self-Operated	Self-Operated	Self-Operated	Self-Operated
Facility Management	Self-Operated	Self-Operated	Self-Operated	Self-Operated
Prime Vendor Contract	Yes	Yes	Yes	Yes

[a] City population was based on the most current information for specific cities based on the U.S. Census Bureau at www.censtats.census.gov/qfd/states/20000.html. Facilities located in a city with a population ≥ 10,000 were urban facilites; facilities located in a city with population < 10,000 were rural facilities.

[b] Resident cost per month is listed as a range because the cost depends on the level of care provided to an individual resident and the type and size of the apartment that the individual resides.

Table 5.1—Table of Facilities Participating in Survey (continued)

	Facility #13	Facility #14	Facility #15	Facility #16
Population of City[a]	5,714	1,254	10, 232	10,232
Number of Residents	30	14	21	41
Number of Licensed Beds	34	15	23	46
Capacity Percentage	88.0	93.0	91.0	89.0
Staffing Ratio during mealtimes	6 residents per staff member	3 residents per staff member	7 residents per staff member	20 Residents per staff member
Meal Plans Offered	All meals included in monthly fee	All meals included in monthly fee	All meals included in monthly fee	All meals included in monthly fee
Meal Service	Plated	Plated	Plated	Plated
Length of Cycle Menu	4 weeks-seasonal	4 weeks	6 weeks	5 weeks
Person Responsible for Menu Planning	Foodservice Distributor	Foodservice Director	Foodservice Distributor	Foodservice Distributor
Credential of Menu Planner	Registered Dietitian	Registered Dietitian	Registered Dietitian	Registered Dietitian
Resident Cost/Month[b]	$2,100	$2,000	$2,573	$2,484
Food Cost/Patient Day	$4.25	$3.50	$3.20	$4.50
Foodservice Management	Self-Operated	Self-Operated	Self-Operated	Self-Operated
Facility Management	Self-Operated	Self-Operated	Self-Operated	Self-Operated
Prime Vendor Contract	Yes	Yes	Yes	Yes

[a] City population was based on the most current information for specific cities based on the U.S. Census Bureau at www.censtats.census.gov/qfd/states/20000.html. Facilities located in a city with a population ≥ 10,000 were urban facilites; facilities located in a city with population < 10,000 were rural facilities.

[b] Resident cost per month is listed as a range because the cost depends on the level of care provided to an individual resident and the type and size of the apartment that the individual resides.

Table 5.2—Description of Survey Participants in Assisted Living Facilities

Demographic Variable	n	%
Gender (N=245)		
Male	63	25.7
Female	182	74.3
Age (N=243)		
35-59	5	2.1
60-69	7	2.8
70-79	42	17.3
80-89	128	52.7
90-99	59	24.3
100-109	2	0.8
Marital Status (N=246)		
Single	28	11.4
Married	40	16.3
Widowed	162	65.9
Divorced	16	6.5
Living Status (N=244)		
Living Alone	213	87.3
Living with Spouse	31	12.7
Length of Stay in Months (N= 235)		
0-12	100	42.6
13-24	51	21.7
25-36	34	14.4
37-48	17	7.3
49-60	6	2.5
61-72	14	6.0
>72	13	5.5
Education Level (N=243)		
Elementary School	20	8.2
High School	170	70.0
Bachelor's Degree	37	15.2
Master's Degree	12	4.9
Doctoral Degree	4	1.6

Table 5.3—Assisted Living Residents' Ratings of Satisfaction

Measurement Item	Mean	SD	Range	Mode
With the amount of choices I can make about my meals, I feel	3.58	0.91	1-5	4
With the foods served, I feel	3.67	0.91	1-5	4
With the overall dining experience, I feel	3.94	0.66	1-5	4
With the services provided, I feel	3.95	0.69	1-5	4
With the overall facility, I feel	3.97	0.77	1-5	4
With the dining room atmosphere, I feel	3.98	0.64	2-5	4

Note: Measurement items were rated using a 5-point scale; 1 being very dissatisfied and 5 being very satisfied.

Overall Dining Experience

Table 5.3 illustrates the mean rating for overall dining experience. The mean rating (3.94 ± 0.66) indicated that residents are satisfied with their overall dining experience. This finding is important since the dining experience can impact long-term care residents' quality of life. Independent sample t-tests were done to examine significant differences in overall dining experience based on demographic data. A significant difference in satisfaction with the overall dining experience was found based on residents' perceptions of health status ($t = -4.468$, $p < 0.001$). Residents who perceived their health status better (4.14 ± 0.67) were more satisfied than those who perceived their health status worse (3.77 ± 0.60). No significant differences were found in satisfaction with the overall dining experience based on gender, education level, size of facility, or location of facility (rural versus urban). ANOVA was done to assess mean differences in overall dining satisfaction based on age, marital status, and length of stay. No significant differences were found based on these three demographic variables.

Inconsistent findings have been reported regarding the effect of demographic factors on satisfaction levels with the foodservice. Dube et al. (1994) found that patients who were older than 50 years of age rated their satisfaction higher than younger patients, residents with lower education levels had higher satisfaction with foodservice, and those who rated their general health better also rated their satisfaction level higher. O'Hara et al. (1997) did not find demographic variables, such as age and gender, related to overall satisfaction with foodservice. Lee (2002) and Seo (2004) who conducted research in CCRCs in Midwestern states found no

significant differences in satisfaction with overall foodservice based on gender. Huang (2004) indicated that residents who rated their general health status better had higher dining experience satisfaction ratings. These differences may be due to the populations surveyed in each of the studies: Dube et al. (1994) studied acute care patients; O'Hara et al (1997), geriatric continuing care units; and Lee (2002) and Seo (2004), CCRC residents; and Huang (2004) and this study focused on assisted living residents. Findings relating to the size and location of the facility are inconsistent with results of other researchers who conducted studies in Midwestern states. Huang (2004) found no significant differences in overall satisfaction with the dining experience among facilities and Lee (2002) found that there were significant differences among facilities.

The relationship between the satisfaction with the four constructs and the satisfaction with the overall dining experience was evaluated (Table 5.4). Multiple regression results revealed a strong, significant relationship [$R^2 = 0.673$, $F(4, 238) = 122.278$, $p < 0.001$] between satisfaction with food served, services, mealtime choices, and dining room atmosphere and satisfaction with the overall dining experience. These four components explained 66.7% of the variance in satisfaction with the overall dining experience. The dining room atmosphere was the component that had the greatest influence on satisfaction with the overall dining experience ($\beta = 0.552$, $p < 0.001$).

Table 5.4—Multiple Regression Model for Predicting Residents' Satisfaction with Overall Dining Experience Based on Four Constructs

Variable	B	SE B	*β*	*t*
1 (Constant)				
Food served	0.104	0.044	0.143	2.351*
Service provided	0.044	0.051	0.046	0.867
Amount of choices regarding mealtimes	0.150	0.040	0.206	3.753***
Dining room atmosphere	0.580	0.051	0.552	11.293***

Note: $R^2 = 0.673$; Adjusted $R^2 = 0.667$
*p < .05, ***p<0.001

Food Served

Mean ratings for satisfaction with food served can be found in Table 5.3. Results indicated that residents are somewhat satisfied with the food quality. Crogan, Evans, and Velasquez (2004) found that food quality impacted satisfaction with the dining experience.

Therefore, dissatisfaction with the food served may impact residents' overall satisfaction with the dining experience.

Results of independent sample t-tests concluded that there was a significant difference in satisfaction with food served based on perceived health status (t = -4.430, $p < 0.001$). Those who rated their health status better had higher mean food satisfaction ratings (3.94 ± 0.78) than those who rated their health status worse (3.44 ± 0.96). These findings were similar to Huang's (2004) results. Huang found that residents who rated their physiological conditions better were more satisfied with the foodservice provided in assisted living facilities. Castellanos (2004) noted a decline in the elderly individual's ability to chew and swallow, making it difficult for them to consume food without assistance. This physiological change would affect the texture and consistency of food they could eat. Sensory loss, including taste, may also affect a residents' food intake (American Dietetic Association [ADA], 1998).

Significant differences were also found based on location of facility (t = 3.287, p = 0.001). Residents living in rural areas had higher satisfaction ratings for food served (3.88 ± 0.77) than those living in urban areas (3.51 ± 0.98). No significant differences were found based on gender, educational level, and facility size.

ANOVA was conducted to assess significant mean differences based on age, marital status, and length of stay. Significant differences were found based on marital status (F = 2.768, p = 0.029) and length of stay (F = 6.059, p = 0.003). Widowed residents (3.74 ± 0.84) rated their satisfaction with food served higher than single residents (3.21 ± 1.17). There were no significant differences between married and divorced residents and residents who are widowed or single. Residents who lived in the facility for one to 12 months (3.87 ± 0.81) rated their satisfaction with food served higher than residents living in the facility for greater than 48 months (3.27 ± 0.98). No significant differences were found with those living in the facility for 13 to 48 months and residents living in facilities one to 12 months and greater than 48 months. No significant differences were found based age.

H1: Residents' perception of food quality has a positive influence on residents' satisfaction with the dining experience.

Hypothesis 1 was supported. Multiple regression results showed that residents' perception of food quality significantly influenced the residents' satisfaction with the overall dining experience (t = 2.351, p = 0.020). Regression results are illustrated in Table 5.4.

Stepwise regression analysis was completed to determine specific attributes of food quality that significantly influenced satisfaction with the food served. Table 5.5 illustrates results of stepwise regression analysis. This study found that four attributes significantly influenced satisfaction with the food served [$R^2 = 0.546$, $F(4, 219) = 65.807$, $p < 0.001$]. The four attributes explained 53.8% of the variances in satisfaction with food served. Stepwise regression results showed that the food quality attributes that had the strongest relationship with residents' satisfaction with the food served included taste ($\beta = 0.456$, $p < 0.001$), preparation method ($\beta = 0.159$, $p = 0.005$), texture ($\beta = 0.145$, $p = 0.019$), and attractive presentation ($\beta = 0.141$, $p = 0.021$).

Table 5.5—Stepwise Regression Model for Predicting Residents' Satisfaction with Food Served Based on Food Quality Variables

Variable	B	SE B	*β*	*t*
1 (Constant)				
Foods taste good	0.411	0.053	0.456	7.736***
A variety of food preparation methods are used	0.156	0.056	0.159	2.805**
The texture and tenderness of foods are appropriate	0.125	0.053	0.145	2.361*
The food are served attractively	0.152	0.065	0.141	2.326*

Note: $R^2 = 0.546$; Adjusted $R^2 = 0.538$
*p < .05, **p < .01, ***p < 0.001
(Attributes excluded: temperature, variety, consistency, nutritional value.)

Services

In general, the mean rating for services indicated that residents are satisfied with the services provided in the assisted living facilities (3.95 ± 0.69) [Table 5.3]. This finding is important since Crogran, Evans and Velasquez (2004) indicated that service quality has an impact on satisfaction with the dining experience.

Independent sample t-tests were used to assess significant mean differences in satisfaction with services provided based on a variety of demographic variables. A significant difference in satisfaction with services provided was found based on perceived health status ($t = -3.700$, $p < 0.001$). Residents who perceived their health status better rated their satisfaction with services provided higher (4.13 ± 0.61) than residents who perceived their health status worse

(3.80 ± 0.71). No significant differences were found for gender, educational level, facility size, or facility location.

Results of ANOVA determined that there were significant differences in satisfaction with services was found based on length of stay. Residents who lived in the facility for one to 12 months (4.04 ± 0.63) rated their satisfaction with the services higher than those who lived in the facility for greater than 48 months (3.59 ± 0.76) [$F = 5.524$, $p = 0.004$]. Residents who lived in the facility for 13 to 48 months rated their satisfaction with services provided higher (3.99 ± 0.69) than residents who lived in the facility for greater than 48 months (3.59 ± 0.76) [$F = 5.524$, $p = 0.012$]. No significant differences were found based on age or marital status.

H2: Residents' perception of service quality has a positive influence on residents' satisfaction with the dining experience.

Hypothesis 2 was not supported. Multiple regression results are illustrated in Table 5.4. This study found that perceived service quality does not significantly influence satisfaction with the overall dining experience ($t = 0.867$, $p = 0.387$).

Results of stepwise regression analysis found that four service quality attributes significantly influenced satisfaction with services provided. Table 5.6 illustrates the stepwise regression results. This study found that four attributes significantly influenced satisfaction with the dining experience [$R^2 = 0.331$, $F(4, 221) = 27.353$, $p < 0.001$]. Perceptions of these four attributes explained 31.9% of the variance in satisfaction with the services provided. Stepwise regression results showed that the service quality attributes that had the strongest relationship with satisfaction with services provided included residents perceptions of employees being well trained ($\beta = 0.225$, $p = 0.002$), treating residents with respect ($\beta = 0.183$, $p = 0.009$), being attentive to residents' needs ($\beta = 0.165$, $p = 0.030$), and attitudes ($\beta = 0.147$, $p = 0.041$).

Table 5.6—Stepwise Regression Model for Predicting Residents' Satisfaction with Services Based on Service Quality Variables

Variable	B	SE B	*β*	*t*
1 (Constant)				
The employees are well trained and competent in service skills	0.162	0.052	0.225	3.124**
The employees treat me with respect	0.196	0.074	0.183	2.639**
The employees in the dining room are attentive to my needs	0.143	0.065	0.165	2.190*
Employees in the dining room have pleasant attitudes	0.128	0.062	0.147	2.056*

Note: $R^2 = 0.331$; Adjusted $R^2 = 0.319$

*p < .05, **p < .01

(Attributes excluded: employee appearance, employees being friendly and courteous, employees socializing with residents at mealtimes, employees using safe food handling practices, foods being served at the time promised.)

Amount of Choices

Satisfaction with the amount of choices was rated lowest among all of the other constructs (Table 5.3). In general, the mean rating for satisfaction with mealtime choices indicated that residents were not satisfied with their level of choices (3.58 ± 0.91). This finding is significant because Dube et al. (1994) indicated that customization was the second most important dimension, following food quality, when determining patient satisfaction with mealtimes.

Independent sample t-tests were completed to examine significant mean differences in satisfaction with the amount of choices at mealtimes based on a variety of demographic variables. A significant difference in satisfaction with mealtime choices was found based on perceived general health status ($t = -4.758$, $p < 0.001$). Residents who rated their health better had higher satisfaction ratings (3.85 ± 0.82) than residents who rated their health status worse (3.32 ± 0.92). These findings support research by Huang (2004) who reported that residents who rated their health status better were more satisfied with the foodservice in assisted living facilities. No significant differences were found based on gender, education level, facility size, or facility location.

ANOVA was computed to examine significant mean differences based on age, marital status, and length of stay. No significant differences in satisfaction with the amount of mealtime choices were found based on these three variables.

H3: Residents' perception of the level of mealtime customization has a significant influence on residents' satisfaction with the dining experience.

Hypothesis 3 was supported. Table 5.4 illustrates multiple regression results. This study found that residents' perception of the level of mealtime customization had a significant influence on satisfaction with the dining experience ($t = 3.753$, $p < 0.001$).

Stepwise regression analysis was conducted to determine mealtime customization attributes that significantly influenced satisfaction with the amount of choices at meals. Stepwise regression results can be found in Table 5.7. This study found that perceptions of five attributes did influence satisfaction with mealtime choices [$R^2 = .476$, $F(5, 209) = 37.986$, $p < 0.001$]. Residents' perceptions of mealtime choices explained 46.4% of the variance in satisfaction with mealtime customization. Stepwise regression results showed that the customization attributes that were the strongest predictors of satisfaction with mealtime choices were the menu providing choices ($\beta = 0.249$, $p = 0.001$), being able to provide input into the menu ($\beta = 0.213$, $p < 0.001$), having adequate choices for special diets ($\beta = 0.207$, $p < 0.001$), being able to choose the portion size ($\beta = 0.147$, $p = 0.010$), and being able to choose the food they eat at meals ($\beta = 0.146$, $p = 0.045$).

Table 5.7—Stepwise Regression Model for Predicting Residents' Satisfaction with Mealtime Choices Based on Customization Variables

Variable	B	SE B	*β*	*t*
1 (Constant)				
The menu provides choices	0.219	0.066	0.249	3.306***
I have the opportunity to provide input into the menu choices	0.180	0.048	0.213	3.732***
There are adequate choices for special diets	0.175	0.047	0.207	3.725***
I choose the portion size or amount of food I wish to receive at mealtimes	0.117	0.045	0.147	2.604**
I choose the food that I want to eat at mealtimes	0.119	0.059	0.146	2.015*

Note: $R^2 = 0.476$; Adjusted $R^2 = 0.464$
*p < 0.05, **p < .01, ***p < 0.001
(Attributes excluded: choices of dining location, sitting location, time of meal, alternate item, and keeping food in room; flexibility of meal schedules to accommodate appointments, and ability to request "to go" meals.)

Dining Room Atmosphere

In general, the residents were satisfied with the dining room atmosphere (3.98 ± 0.64) [Table 5.3]. Dining room atmosphere satisfaction was rated highest among all of the other constructs. This finding is important since assisted living facilities are considered the residents' home, and the environment may impact the pleasure of their dining experience (Castellanos, 2004). Chang (2000) also found that customer satisfaction is significantly impacted by perceptions of the physical environments.

Results of t-tests found a significant difference in satisfaction with dining room atmosphere was found based on perceived health status ($t = -4.492$, $p < 0.001$). Residents who perceived their health status better had higher atmosphere satisfaction levels (4.17 ± 0.59) than residents who perceived their health status worse (3.82 ± 0.62). A significant difference was also found based on location of facility ($t = 2.281$, $p = 0.023$). Residents who lived in facilities in rural areas (4.08 ± 0.57) rated their satisfaction with the dining room atmosphere higher than residents living in facilities in urban areas (3.90 ± 0.67). No significant differences were found based on gender, educational level, or facility size.

ANOVA was done to examine significant mean differences in satisfaction with the dining room atmosphere based on age, marital status, and length of stay. No significant differences were found based on these three variables.

H4: Residents' perception of the quality of servicescape has a positive influence on residents' satisfaction with the dining experience.

Hypothesis 4 was supported. Multiple regression results are illustrated in Table 5.4. The residents' perception of the quality of servicescape had a significant influence on residents' satisfaction with the dining experience ($t = 11.293$, $p < 0.001$).

Stepwise regression analysis was used to determine environmental attributes that significantly influenced satisfaction with the dining room atmosphere (Table 5.8). Perceptions of four dining room environment attributes significantly influenced satisfaction levels with dining room atmosphere [$R^2 = 0.403$, $F(4, 224) = 37.776$, $p < 0.001$]. Perceptions of these four servicescape attributes explained 39.2% of the variance in satisfaction with the dining room atmosphere. Stepwise regression results indicated that the environmental attributes that were the strongest predictors of satisfaction with the dining room atmosphere included residents' physical comfort during mealtimes ($\beta = 0.211$, $p = 0.005$), attractiveness of the silverware, glassware, and china ($\beta = 0.187$, $p = 0.001$), the dining room being homelike/family oriented ($\beta = 0.229$, $p = 0.001$), and the dining room décor ($\beta = 0.209$, $p = 0.002$).

Table 5.8—Stepwise Regression Model for Predicting Residents' Satisfaction with Dining Room Atmosphere Based on Dining Room Environment Variables

Variable	B	SE B	β	t
1 (Constant)				
I am physically comfortable while dining during mealtimes	0.199	0.070	0.211	2.854**
The silverware, glassware, and china are attractive	0.176	0.054	0.187	3.236**
The dining room is a home-like/family environment	0.193	0.057	0.229	3.352**
The décor in the dining room is attractive	0.211	0.066	0.209	3.206**

Note: $R^2 = 0.403$; Adjusted $R^2 = 0.392$

**p < 0.01

(Attributes excluded: lighting, dining room temperature, scents in dining room, limited offensive noise, adequate space for guests, attractive table setting, cleanliness of dining room, comfort of dining room.)

Overall Facility

The mean rating for overall facility indicated that the residents were satisfied with their facilities (3.97 ± 0.77) (Table 5.3). Independent sample t-tests were completed to assess significant mean differences in satisfaction with the overall facility based on a variety of demographic variables. A significant difference was found based on perceived health status (t = -3.421, p = 0.001). Residents who perceived their health status better had higher overall facility satisfaction levels (4.15 ± 0.73) than those who perceived their health status worse (3.83 ± 0.75). A significant difference also was found based on location of facility (t = 2.704, p = 0.007). Residents who lived in facilities in rural areas (4.11 ± 0.66) had higher mean ratings for overall facility satisfaction than those who lived in urban areas (3.86 ± 0.82). No significant differences in satisfaction with the overall facility were found based on gender, education level, and size of facility. Results of ANOVA found that there were no significant mean differences based on age, marital status, or length of stay.

The relationship between the satisfaction with the four constructs and the satisfaction with the overall facility was examined (Table 5.9). Multiple regression results showed that there was a strong, significant relationship [R^2 = 0.545, F(4, 238) = 71.201, p <0.001] between these four components and satisfaction with the overall facility. Satisfaction with food served, services, mealtime choices, and dining room atmosphere explained 53.7% of the variance in satisfaction with the overall facility. Satisfaction with the dining room atmosphere was the component that had the greatest influence on satisfaction with the overall facility (β = 0.394, p < 0.001).

Table 5.9—Multiple Regression Model for Predicting Residents' Satisfaction with Overall Facility Based on Four Constructs

Variable	B	SE B	*B*	*t*
1 (Constant)				
Food served	0.155	0.059	0.188	2.620**
Service provided	0.180	0.068	0.164	2.637**
Amount of choices regarding mealtimes	0.109	0.054	0.132	2.042*
Dining room atmosphere	0.471	0.069	0.394	6.836***

Note: R^2 = 0.545; Adjusted R^2 = 0.537
*p < .05, **p < .01, ***p < 0.001

Residents' Attribute Ratings

Residents' perceptions of quality of the four constructs were evaluated by measuring several attributes for each construct. Measurement items were rated using a 5-point scale; 1 being strongly disagree and 5 being strongly agree. Composite mean scores for food quality, service quality, mealtime customization, and dining room environment attributes were calculated to determine residents' overall perceptions of quality for each of the constructs.

Table 5.10 illustrates the composite mean scores for food quality, service quality, mealtime customization, and dining room environment attributes. Service quality (4.03 ± 0.60) and environmental (3.97 ± 0.52) attributes were rated higher than food quality attributes (3.64 ± 0.74). Service quality (4.03 ± 0.60) attributes were also rated higher than customization (3.42 ± 0.62) and dining room environment attributes (3.97 ± 0.52). Dining room environment (3.97 ± 0.52) and food quality (3.64 ± 0.74) attributes were rated higher than mealtime customization attributes (3.42 ± 0.62).

Table 5.10—Composite Mean Scores for Quality Attributes

Quality Attribute	Mean	SD	Range
Food Quality	3.64	0.74	1.63-5.00
Service Quality	4.03	0.60	2.00-5.00
Mealtime Customization	3.42	0.62	1.08-5.00
Dining Room Environment	3.97	0.52	2.17-5.00

Note: Measurement items were rated using a 5-point scale; 1 being strongly disagree and 5 being strongly agree.

Food Quality

Table 5.11 illustrates the mean ratings of food quality attributes. Except for two items, food quality attribute ratings were lower than mean ratings for service quality. Huang (2004) also found that residents of assisted living facilities rated service quality attributes higher than food quality attributes. The two attributes that were rated the lowest were "the quality of food is consistent each time it served" (3.43 ± 1.01) and "the texture and tenderness of foods are appropriate (3.43 ± 1.05). Huang (2004) found similar results with the residents of assisted living residents who rated consistency of the quality of food and texture and tenderness of food

lowest among food quality attributes. The food quality attributes that were rated the highest were "the foods are served attractively" (3.82 ± 0.83) and "foods served are high in nutritional value" (3.75 ± 0.88).

Independent sample t-tests were computed to assess significant mean differences in the food quality composite mean score based on a variety of demographic variables. A significant difference in the food quality composite mean score was found based on health status (t = -4.250, $p < 0.001$). Residents who perceived their health status better rated food quality attributes higher (3.85 ± 0.72) than those who perceived their health status worse (3.443 ± 0.69). A significant difference was found based on education level (t = -2.142, $p = 0.033$). Residents who had a college education rated food quality attributes higher (3.85 ± 0.75) than residents who had a high school education or less (3.60 ± 0.72). A significant difference was also found based on location of the facility ($t = 4.020$, $p < 0.001$). Residents living in rural areas (3.86 ± 0.68) rated food quality attributes higher than residents living in urban areas (3.47 ± 0.73). No significant differences were found based on gender or facility size. Huang (2004) indicated that there was a significant difference in perceptions of food quality among facilities.

ANOVA was done to examine significant mean differences based on age, marital status, and length of stay. A significant difference was found in the composite mean for food quality attributes based on length of stay. Residents living in the facility for one to 12 months (3.85 ± 0.68) rated food quality attributes significantly higher than residents who lived in the facility for 13 to 48 (3.54 ± 0.73) [F = 8.446, p = 0.014] or greater than 48 months (3.28 ± 0.83) [F = 8.446, $p = 0.001$]. No significant differences were found based on age or marital status.

Service Quality

Table 5.11 illustrates the mean ratings of individual service quality attributes. The lowest rated service quality attributes were "The employees in the dining room socialize/talk with me during mealtimes" (3.76 ± 0.91) and "the foods are served at the time promised" (3.80 ± 1.00). This finding is inconsistent with results from studies by Evans and Crogan (2005) and Evans et al. (2003) who found that residents believed that meals were served at the right time. The highest rated service quality attributes were "the employees treat me with respect" (4.26 ± 0.65) and "the employees in the dining room are courteous and friendly" (4.21 ± 0.69). Huang (2004) found similar results with assisted living residents' rating respectful treatment from employees, neat appearances of employees, and employees' attentiveness to residents' needs as the highest

Table 5.11—Residents Ratings of Perceived Quality of Foodservice in Assisted Living Facilities

Measurement Item	Mean	SD	Range
Food Quality			
The quality of food is consistent each time it is served	3.43	1.01	1-5
The texture and tenderness of foods are appropriate	3.43	1.05	1-5
Foods are served at the appropriate temperature (hot food is hot, cold food is cold)	3.50	1.00	1-5
Food taste good	3.61	0.98	1-5
A variety of foods are offered	3.68	1.00	1-5
A variety of food preparation methods are used.	3.69	0.94	1-5
Foods served are high in nutritional value.	3.75	0.88	1-5
The foods are served attractively	3.82	0.83	1-5
Service Quality			
The employees in the dining room socialize/talk with me during mealtimes.	3.76	0.91	1-5
The foods are served at the time promised.	3.80	1.00	1-5
The employees are well trained and competent in service skills.	3.88	0.96	1-5
The employees use safe food handling practices.	3.99	0.83	1-5
The employees in the dining room are attentive to my needs.	4.07	0.78	1-5
The employees' appearances are neat.	4.12	0.81	1-5
Employees in the dining room have pleasant attitudes.	4.14	0.77	1-5
The employees in the dining room are courteous and friendly.	4.21	0.69	1-5
The employees treat me with respect.	4.26	0.65	2-5
Customization			
I choose the time when meals are served to me.	2.74	1.07	1-5
I can choose the location in the dining room where I sit.	3.17	1.15	1-5
I choose the portion size or amount of food I wish to receive at mealtimes.	3.18	1.13	1-5
I have the opportunity to provide input into menu choices.	3.22	1.05	1-5
I can choose the location where I would like to eat my meals (dining room, my room, restaurant, etc.)	3.48	1.03	1-5
I can request "To Go" meals to accommodate my appointments.	3.50	0.92	1-5
The menu provides choices.	3.52	1.03	1-5
There are adequate choices for special diets (for diabetics, low salt, etc.)	3.55	1.06	1-5

Note: Measurement items were rated using a 5-point scale; 1 being strongly disagree and 5 being strongly agree.

Table 5.11—Residents Ratings of Perceived Quality of Foodservice in Assisted Living Facilities (continued)

Measurement Item	Mean	SD	Range
Customization (continued)			
If I do not like what I am served at a meal, I can request an alternate item.	3.71	0.89	1-5
There is flexibility of meal schedules to accommodate for appointment.	3.74	0.84	1-5
I am allowed to keep food in my room.	3.81	0.85	1-5
Environment			
Offensive noise during mealtimes is limited.	3.63	0.97	1-5
The temperature in the dining room is comfortable.	3.82	0.91	1-5
There is enough space in the dining room to accommodate my guests.	3.88	0.82	1-5
The silverware, glassware, and china are attractive.	3.88	0.68	1-5
The dining room is comfortable and easy to move around in.	3.91	0.79	1-5
The dining room is a home-like/family environment.	3.95	0.76	1-5
The table setting and decorations are attractive.	3.95	0.75	1-5
The scents in the dining room are pleasant.	4.03	0.70	1-5
I am physically comfortable while dining during mealtimes.	4.06	0.69	1-5
The décor in the dining room is attractive.	4.06	0.65	2-5
The dining room is clean.	4.11	0.66	1-5
There is adequate lighting in the dining room.	4.14	0.73	1-5
Other			
I am able to interact with the facility's dietitian.	3.27	1.07	1-5
If substitutions to the menu items are made, staff communicates these changes to me before mealtimes.	3.32	1.09	1-5
I enjoy celebrating special occasions at mealtimes (i.e. holidays, birthdays, etc.)	3.94	0.85	1-5
Mealtimes are a time for me to socialize with other residents and staff members.	3.98	0.73	2-5

Note: Measurement items were rated using a 5-point scale; 1 being strongly disagree and 5 being strongly agree.

service quality attributes. Evans et al. (2003) also reported that "being served by courteous staff" was very important to the residents.

Results of independent sample t-tests found a significant difference in the composite mean score for service quality attributes based on perceived health status (t = -3.857, $p < 0.001$). Residents who perceived their health status better rated service quality attributes higher (4.18 ± 0.58) than those who perceived their health status worse (3.88 ± 0.58). A significant difference was also found based on location of facility (t = 2.767, p = 0.006). Residents living in rural areas (4.15 ± 0.56) rated service quality attributes higher than residents living in urban areas (3.93 ± 0.61). No significant differences were found based on gender, educational level, and facility size. Lee (2002) and Seo (2004) reported similar findings indicating that there were no significant differences in service quality ratings based on gender. Huang (2004) found significant differences in service quality ratings among different facilities.

ANOVA was completed to examine significant mean differences in service quality attributes based on age, marital status, and length of stay. No significant differences were found based on these three demographic variables. Lee (2002) and Seo (2004) reported similar findings indicating that there were no significant differences in service quality ratings based on marital status.

Level of Customization

Table 5.11 summarizes individual mean ratings for customization attributes. In general, customization attributes were rated lowest of all attributes measured. The lowest rated customization attributes were "I choose the time when meals are served to me" (2.74 ± 1.07) and "I have the opportunity to provide input into menu choices" (3.22 ± 1.05). This finding was similar to results found by Crogan, Evans, Severtsen et al. (2004) who reported that residents were frustrated that their input was not taken into consideration for changes regarding mealtimes. The highest rated customization attributes were "I am allowed to keep food in my room" (3.81 ± 0.85) and "there is flexibility of meal schedules to accommodate for appointments" (3.74 ± 0.84). Assisted living residents would like to have more control over their choices regarding mealtimes. Food is often used as a symbol of control in an elderly individual's life, especially when they feel as if they are losing their independence (Beck, 1981).

Independent sample t-tests were completed to examine significant mean differences in the customization composite mean score based on a variety of demographic variables. A

significant difference was found based on perceived health status (t = -3.206, p = 0.002). Residents who perceived their health status better rated mealtime customization attributes higher (3.54 ± 0.64) than residents who rated their health status worse (3.27 ± 0.57). No significant differences were found in composite mean ratings for mealtime customization attributes based on gender, educational level, facility size, or location of the facility. This is inconsistent with research done by Dube et al. (1994) who found that females were more satisfied with customization attributes than men.

ANOVA was used to assess significant mean differences in the customization composite mean score based on age, marital status, and length of stay. No significant differences were found based on these three demographic variables.

Dining Room Environment

Environmental attributes were generally rated higher than food quality, service quality, and customization attributes. Mean ratings for environmental attributes are summarized in Table 5.11. The environmental attributes rated lowest were "offensive noise is limited during mealtimes" (3.63 ± 0.97) and "the temperature in the dining room is comfortable" (3.82 ± 0.91). The environmental attributes with the highest ratings were "there is adequate lighting in the dining room" (4.14 ± 0.73) and "the dining room is clean" (4.11 ± 0.66). Bitner (1992) suggests that noise, temperature, lighting and many other environmental factors can significantly impact an individual's enjoyment of a situation.

Independent sample t-tests were completed to assess significant mean differences in the dining room environment composite mean score based on a variety of demographic variables. A significant difference was found based on perceived health status (t = -3.602, $p < 0.001$). Residents who perceived their health status better rated dining room environment attributes higher (4.09 ± 0.51) than residents who perceived their health status worse (3.85 ± 0.49). A significant difference was also found based on educational level (t = -2.068, p = 0.040). Residents with a college education (4.11 ± 0.55) rated dining room environment attributes higher than residents with a high school education or less (3.94 ± 0.50). No significant differences were found based on gender, location of facility, or facility size.

Results of ANOVA found a significant difference in the composite mean rating of dining environment attributes based on marital status. Widowed residents (4.02 ± 0.47) rated dining room attributes significantly higher than single residents (3.68 ± 0.59) [F = 3.741, p = 0.008].

There were not significant differences with married (3.95 ± 0.55) or divorced residents (4.06 ± 0.62). No significant differences were found based on age or length of stay.

Other

Other attributes that were measured included residents' ratings of celebrating special occasions, ability to interact with the facility's dietitian, communication regarding substitutions to the menu items, and ability to socialize with other residents and staff members during mealtimes. Residents participating in focus groups identified these items as important. Table 5.11 illustrates the mean ratings for these attributes. Mean ratings indicate that residents did not agree that they could interact with the facility's dietitian (3.27 ± 1.07) or received communication from staff members regarding substitutions to the menu items (3.32 ± 1.09). Residents enjoyed celebrating special occasions during mealtimes (3.94 ± 0.85) and socializing with other residents and staff members during mealtimes (3.98 ± 0.73). These findings indicate that other mealtime attributes in addition to food quality, service quality, level of customization, and dining room environment may affect overall dining satisfaction.

Summary and Implications

Assisted living residents in this study rated their satisfaction highest for the dining room environment followed by service quality, food quality and level of customization. Service quality attributes were generally rated higher than food quality attributes indicating that the residents were more satisfied with the service delivery than with the quality of food they received in the assisted living facilities. Residents were not satisfied with their level of choices regarding meals. However, they were satisfied with the overall dining experience and the overall facility.

Resident satisfaction information regarding mealtimes is important to collect because it provides administrators, foodservice directors, and dietitians insightful information regarding areas within the dining experience that need improvement. By identifying areas that need improvement and making changes in these areas, resident satisfaction is likely to increase. Satisfaction information is important for ongoing quality care improvement and quality of life enhancement for the residents living in these facilities. Satisfaction reports in long-term care facilities are especially important since the residents live in these facilities, and their satisfaction

regarding meals may impact their quality of life for years. Although, satisfaction information is important, Castle, Lowe, Lucas, Robinson and Crystal (2004) suggest that long-term care facilities often fall behind other health care arenas when it comes to reporting satisfaction levels of their residents. Results from this study can assist administrators, foodservice directors and dietitians in initiating on-going programs to collect resident satisfaction information regarding mealtimes to be used to improve the dining experience for their residents. The following paragraphs provide recommendations for administrators, foodservice directors, and dietitians employed in assisted living facilities based on results from both the qualitative and quantitative segments of this research.

Food quality attributes were very important to the residents and were generally rated low. Dietitians can use these results when planning menus for residents in assisted living facilities. Some residents are concerned about the nutritional value of the meals that they receive in assisted living facilities. Dietitians should provide nutritional information for meals served to assisted living residents so that administrators would be able to provide that information to the residents. Foodservice directors should encourage their employees to use standardized recipes so that the products' quality will be more consistent each time the menu item is served. Foodservice directors should monitor the presentation of foods so that meals are served attractively to the residents.

Although service quality attributes were generally rated higher than food quality attributes, it is important to continually monitor these attributes. Administrators and foodservice directors should hire foodservice employees that have experience working with the elderly and who are respectful and friendly to the residents. Administrators and foodservice directors should encourage staff to talk and socialize with the residents. Some assisted living residents indicated that meals are not served in the time promised. Foodservice directors should monitor productivity of the foodservice staff and utilize production sheets to ensure that menu items are made and meals are served in a timely manner. By providing meals at the time promised, residents will gain trust in foodservice staff and become more satisfied with the service quality.

Residents participating in this study rated meal customization attributes low. Administrators, foodservice directors and dietitians should recognize that improvements need to be made regarding the level of choices residents have at mealtimes. When planning menus, dietitians could provide alternate choices for the entrée, vegetable, and dessert so that residents

had choices at mealtimes. Using a restaurant style menu would allow residents more choices since they can order items desired. Assisted living facilities would need to have the staff capabilities and resources in order to implement a restaurant style menu that had multiple meal options. Foodservice directors could also implement a buffet style option for one of the meals of the day so that the residents have more of a choice of what to eat and how much they receive. When implementing buffet meal service, staff may need to assist residents with limited mobility. Meal times could be extended so that residents have more freedom of when they ate a meal.

Dining room environment attributes were rated high in this study and found to be important to the assisted living residents. Foodservice directors should encourage their employees to keep the kitchen doors closed during mealtimes and refrain from operating the dish machine while the residents are dining to limit the noise from the kitchen. Tables should not be placed under air conditioning/heating vents to prevent uncomfortable room temperatures for the residents sitting directly under them. Administrators and foodservice directors should encourage staff members to keep the dining room clean in between meals and to decorate the dining room attractively for holidays and special occasions.

A limitation of this study is that these results cannot be generalized beyond the population of this study because the questionnaire was administered only in 16 assisted living facilities in a Midwestern state. Further research should be conducted in assisted living facilities of other regions of the United States. The questionnaire required residents to understand the questions being asked of them. Therefore, residents with Alzheimer's Disease and/or dementia were excluded from participating in the questionnaire. Physical disabilities such as poor sight or hearing may also have limited the residents' willingness to complete the questionnaire. Most administrators thought that the best time to distribute the questionnaire was during mealtimes since all residents would be gathered together in the dining room. The time of questionnaire distribution could be a limitation in this study. Satisfaction with the particular meal that was being served may have affected the residents' responses on the questionnaire. Another limitation of this study is the length of the questionnaire. Many residents fatigued while filling out the questionnaire and required assistance from the researchers to complete the instrument. Residents may have responded in ways that were more socially acceptable with a researcher assisting them in completing the questionnaire. Also, some residents did not wish to participate in the administration of the survey because of the length of the questionnaire. Future studies should

conduct focus groups to discover attributes that are the most important to resident satisfaction and eliminate items that are not significantly important to the residents. Stepwise regression analysis results can also be used to determine key attributes to focus on in resident satisfaction surveys. Researchers could use the results of stepwise regression to limit the questions to those that were found to be the greatest predictors of residents' satisfaction. Thus, researchers could administer a shorter questionnaire to increase the residents' willingness to participate in survey administration.

This study did not investigate the affect of customer satisfaction on food consumption or nutritional status. Further research should be conducted to explore the impact of satisfaction with the dining experience on nutrient intake and nutritional status of the residents. Also, further research should be conducted to investigate the impact of customer satisfaction on residents' perceived quality of life and residents' willingness to recommend the facility to others based on their satisfaction with the dining experience.

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CHAPTER 6 - SUMMARY AND CONCLUSIONS

The purposes of this study were to explore factors of the dining experience that are important to assisted living residents and to examine resident perceptions and satisfaction with the dining experience. The objectives of this study were: (1) to determine specific attributes of food, service, resident choice, and environment that affect assisting living residents' quality perceptions of their dining experiences, (2) to ascertain the affect of assisted living residents' quality perception of food, service, resident choice, and dining room environment on resident satisfaction with the dining experience, (3) to investigate the relationship between resident perceptions of quality and resident satisfaction with the dining experience in assisted living facilities.

Focus groups among assisted living residents were conducted to investigate mealtime factors that were important to them. Residents in three facilities participated in the focus groups, and a total of 22 residents participated in focus group discussions. A questionnaire developed by Huang (2004) was revised following an in depth literature review and the focus groups were conducted with assisted living residents. Resident's perceptions and satisfaction with food quality, service quality, level of customization, and dining room environment were measured using the revised questionnaire. The questionnaire was administered to residents in 16 assisted living facilities. A total of 246 useable responses were obtained for a 50% response rate.

Major Findings

Food quality, level of customization, and dining room environment were found to have a significant influence on satisfaction with the overall dining experience. Service quality did not significantly influence residents' satisfaction with the overall dining experience. Satisfaction with the food served, services provided, amount of choices at mealtimes, and dining room atmosphere were all found to have a significant influence on satisfaction with the overall facility. Perceptions of food quality attributes significantly influenced satisfaction with food served, perceptions of service quality attributes significantly influenced satisfaction with services provided, perceptions of the level of mealtime customization significantly influenced satisfaction

with amount of mealtime choices, and perceptions of the dining room environment attributes significantly influenced satisfaction with the dining room atmosphere.

Significant differences in satisfaction and composite mean scores of quality attributes were assessed using t-tests and ANOVA. T-tests revealed that a significant difference was found in satisfaction with the food served, services provided, amount of mealtime choices, dining room atmosphere, overall dining experience, and overall facility based on perceived health status. In all cases, residents who perceived their health status better had higher satisfaction levels than residents who perceived their health status worse. Significant differences were also found in food quality, service quality, mealtime customization, and dining room environment composite mean scores based on perceived health status. Again, residents who perceived their health status better rated attributes higher than residents who perceived their health status worse. Residents who perceive their health status better may have a more positive outlook on other areas of their lives, which may lead to more positive satisfaction and quality ratings. Other significant differences were found based on demographic variables. However, no other significant differences were found consistently in satisfaction levels or composite mean scores based on any one demographic variable.

There were significant differences found in food quality and dining room environment composite mean scores based on educational level. In both cases, residents who had a college education rated attributes higher than residents who had a high school education or less. Residents who had a college education may have more realistic expectations of the assisted living facility.

Significant differences were found in food quality and service quality composite mean scores based on location of the facility. Significant differences were also found in satisfaction with the food served, dining room atmosphere and overall facility based on location of the facility. In all cases, residents living in facilities located in rural areas had higher ratings than residents living in urban areas. Residents living in facilities in rural areas may have been lived in rural areas their entire lives. These residents may have a more personal connection with the administrators and staff because they knew them from the community before moving into the facility. Administrators and staff may also try to provide a more positive experience for the residents because of this personal connection, leading to higher satisfaction and quality ratings.

A significant difference was found in satisfaction with food served and the dining room environment composite mean score based on marital status. In both cases, widowed residents had higher ratings than single residents. Widowed residents may have higher ratings because they enjoy the companionship of the other residents in the facility after the death of their spouse. Single residents may not enjoy living in the facility because they have lived alone for a majority of their adult lives.

Significant differences in satisfaction were found with food served and services provided based on length of stay. A significant difference also was found in the food quality mean score based on length of stay. Residents who lived in the facility for shorter periods of time had higher ratings than residents who lived in the facility for longer. All facilities in this study used cycle menus. Therefore, residents who lived in the facilities for longer may have been disappointed to see the same things year after year. Residents living in the facility for longer periods of time have more opportunity to recognize limitations in the facility.

Conclusion and Implications

Focus groups were conducted to assess the importance of specific mealtime attributes among assisted living residents. During the focus groups, residents indicated several attributes of four constructs that they felt were important. These four constructs included food quality, service quality, level of customization, and dining room environment.

This study tested four hypotheses. Results indicated that assisted living residents' perceptions of food quality, level of customization, and dining room environment had a significant influence on satisfaction of the overall dining experience. Satisfaction with the food served, services provided, mealtime choices available, and dining room atmosphere also had a significant influence on the satisfaction with the overall facility. These findings suggest that administrators, foodservice directors, and dietitians who work in assisted living facilities should assess these areas of the dining experience regularly to determine what improvements need to be made to increase resident satisfaction.

It is important that assisted living administrators, foodservice directors, and dietitians collect residents' opinions and feedback on their dining experiences. Multiple approaches should be used to evaluate resident satisfaction with the mealtimes in assisted living facilities. Satisfaction surveys could be administered on a regular basis to assess resident satisfaction with

specific areas of the mealtime. Conducting one-on-one interviews with residents or having discussions with a group of residents may also be helpful in gaining insight about areas that need improvements or to attain suggestions regarding the dining experience from the residents.

Administrators and foodservice directors can use the results of this study to determine areas of the foodservice in assisted living facilities that need to be improved to meet residents' expectations. The strongest predictors for satisfaction for food served included taste of food, preparation method, texture of food, and attractiveness of meals. Foodservice directors should monitor food preparation to ensure that foods are served attractively, the foods served taste good, and the texture and tenderness of foods are appropriate. Administrators and foodservice directors should continuously get feedback from the residents on these factors. Dietitians should create menus that offer foods prepared using a variety of methods.

The service quality attributes with the strongest relationship with satisfaction with the services provided included employees being well trained, employees being respectful, employees being attentive to the residents' needs, and employees having pleasant attitudes. Administrators and foodservice directors should provide training to improve employees' service skills. Foodservice directors should also hire employees' that have experience working with the elderly population and encourage staff to be respectful to the residents.

The strongest predictors of satisfaction with the amount of mealtime choices were the menu providing choices, being able to provide input into the menu, having adequate choices for special diets, being able to choose the portion sizes, and being able to choose food that they like at meals. Mealtime customization was found to significantly influence satisfaction with the overall dining experience; however, customization attributes were rated the lowest. When creating menus for assisted living facilities, registered dietitians should recognize that residents want choices on the menu, and it is important for them to provide input into the menu choices. Also, registered dietitians should take into consideration special diets when creating menus so that residents with certain food restrictions have adequate menu options at mealtimes. Administrators and foodservice directors could also give residents the ability to choose the amount of food that they receive by offering a variety of portion sizes.

The strongest predictors of satisfaction with the dining room environment were the comfort of the dining room; the attractiveness of the silverware, glassware, and china; the dining room being a home-like/family environment; and the dining room décor. Dining room

environment was found to be the construct with the greatest influence on satisfaction with the overall dining experience and overall facility. Administrators and foodservice directors should ensure that the dining room is comfortable for the residents in their facilities. Administrators should involve residents when decorating the dining room and purchasing silverware, glassware, and china so that the residents enjoy the dining room atmosphere. Involving the residents in such decisions may also make the residents feel more at home in the dining room, which is important to their satisfaction.

Administrators and foodservice directors can use the results to determine attributes of the dining experience that are the most important to assisted living residents. They can then target those areas to develop satisfaction surveys to administer to their residents on a regular basis. By using results of satisfaction surveys, administrators and foodservice directors can identify strategies to improve the dining experience and ultimately residents' satisfaction. Results of satisfaction surveys can be used to benchmark progress that the facility is making in enhancing residents' satisfaction. Providing feedback to the residents regarding the changes that have been made based on results of satisfaction survey is imperative. Residents participating in focus groups stated emphatically that they wanted to have the opportunity to provide input and to obtain feedback on changes that have been made.

Family members of individuals who are searching for a facility may also use the results of this study to recognize areas of the dining experience that are important to residents living in assisted living facilities. As family members visit different facilities, they can evaluate factors of the dining experience that were found to be important. These evaluations will assist family members in assessingthe quality of the mealtime experience in each facility and ultimately help them choose a facility for their family member to reside.

Limitations and Future Study

Results of this study may not be generalized to all assisted living facilities. Results may only be generalized to facilities within a 110-mile radius of the research institution in Kansas. The questionnaire and focus group discussions required residents to understand the questions being asked of them. Therefore, residents who had mental health problems, such as Alzheimer's Disease and/or dementia, were excluded from participating in the study. Physical disabilities, such as poor sight or hearing, may also have limited the residents' willingness to participate in

the questionnaire administration and focus group discussions. The time of day that the questionnaires were distributed is another limitation of this study. Questionnaires were administered during mealtimes because residents were gathered in the dining room. Satisfaction with the specific meal that was being served at the time of survey administration may have affected the residents' responses. Another limitation of this study may have included unreliable responses caused by residents' fatigue from the length of the questionnaire. Many residents fatigued while filling out the questionnaire and required assistance from the researchers to complete the questions. Residents may have responded in ways that were more socially acceptable with a researcher assisting them in completing the questionnaire. Also, some residents did not wish to participate in the administration of the survey because of number of questions to be answered.

Cronbach alpha was run on the questionnaire to determine if the reliability of the questionnaire increased if any questions were deleted. Table 6.1 illustrates the reliability of the constructs if any of the attributes are deleted. The reliability of any of the constructs did not change significantly when items were deleted. Therefore, no specific items are recommended to be deleted. In future studies, the questionnaire could be administered in two different sessions so that the residents did not fatigue from having to complete a long questionnaire. Food quality and service quality could be measured in the first session, and mealtime customization and dining room environment could be measured in the second session. Administrators, foodservice directors, and dietitians could also choose items on the questionnaire that they were more interested in measuring. They could then administer a shorter questionnaire with only those items to evaluate residents' satisfaction. This would also help eliminate residents' fatigue due to the length of the questionnaire. Stepwise regression analysis results could also be used to determine key attributes to focus on in resident satisfaction surveys. Researchers could use the results of stepwise regression to limit the questions to those that were found to be the greatest predictors of residents' satisfaction. Thus, researchers could administer a shorter questionnaire to increase the residents' willingness to participate in survey administration.

Further research should be conducted in assisted living facilities in other regions of the United States to compare results with this study and make results more generalizable to assisted living facilities. Also, the affect of customer satisfaction on food intake or nutritional status were not evaluated in this study and should be investigated. Huang (2004) found that customer

satisfaction was associated with assisted living residents' food intake. Food and service qualities also significantly impacted resident's food intake. These results indicated that assisted living residents' nutritional status may be enhanced by increasing customer satisfaction with the dining experience. Further research should be conducted to investigate the affect of customer satisfaction on assisted living residents' nutrient intake and nutritional status. Research could also be done to discover if residents' satisfaction with dining experience affects quality of life among assisted living residents and their intention to recommend the facility to others.

Table 6.1—Cronbach Alpha when Items Deleted From Questionnaire

Measurement Item	Cronbach Alpha	Cronbach Alpha if Item Deleted
Food Quality	0.896	
Foods taste good		0.881
Foods are served at the appropriate temperature		0.888
A variety of foods are offered		0.885
The quality of food is consistent each time it is served		0.878
The texture and tenderness of foods are appropriate		0.880
The food are served attractively		0.884
Foods served are high in nutritional value		0.884
A variety of food preparation methods are used		0.885
Service Quality	0.886	
The employees' appearances are neat		0.880
The employees are well trained and competent in service skills		0.873
The employees in the dining room are attentive to my needs		0.868
The employees treat me with respect		0.875
Employees in the dining room have pleasant attitudes		0.866
The employees in the dining room are courteous and friendly		0.870
The employees in the dining room socialize/talk with me during mealtimes		0.881
The employees use safe food handling practices		0.869
The foods are served at the time promised		0.880
Mealtime Customization	0.845	
I choose the food that I want to eat at mealtimes		0.826
The menu provides choices		0.825
I can choose the location where I would like to eat my meals		0.826
I can choose the location in the dining room where I sit		0.838
I choose the time when meals are served to me		0.836
I choose the portion size or amount of food I wish to receive at mealtimes		0.832
If I do not like what I am served at a meal, I can request an alternate item		0.835
I am allowed to keep food in my room		0.846
There are adequate choices for special diets		0.838
There is flexibility of meal schedules to accommodate for appointments		0.834
I can request "To Go" meals to accommodate my appointments		0.832
I have the opportunity to provide input into the menu choices		0.830

Table 6.1—Cronbach Alpha when Items Deleted From Questionnaire (continued)

Measurement Item	Cronbach Alpha	Cronbach Alpha if Item Deleted
Dining Room Environment	0.896	
There is adequate lighting in the dining room		0.887
The temperature in the dining room is comfortable		0.891
The scents in the dining room are pleasant		0.883
Offensive noise during mealtimes is limited		0.895
There is enough space in the dining room to accommodate my guests		0.892
The table setting and decorations are attractive		0.889
I am physically comfortable while dining during mealtimes		0.885
The décor in the dining room is attractive		0.887
The silverware, glassware, and china are attractive		0.893
The dining room is clean		0.883
The dining room is a home-like/family environment		0.884
The dining room is comfortable and easy to move around in		0.886

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Huang, H. (2004). Factors affecting satisfaction and residents' utilization of foodservice in assisted living facilities. Unpublished doctoral dissertation, Kansas State University, Kansas.

Appendix A - Permission Letter From Huang To Revise Questionnaire

October 7, 2006

Amber Howells
104 Justin Hall
Kansas State University
Manhattan, KS 66506

Dear Amber,

I understand that you are working on your thesis regarding resident satisfaction wit
mealtimes among assisted living residents. I am writing this letter to grant permiss
you for use of the questionnaire that I developed for my dissertation entitled "Factc
Affecting Satisfaction and Residents' Utilization of Foodservice In Assisted Living
Facilities." in your study. I give you permission to use this questionnaire and to re
to specifically meet your research needs. Please properly cite the source in your th
Thank you.

Sincerely,

Hui-Chun Huang.

Hui-Chun Huang, Ph.D.
Assistant Professor
Dept. of Restaurant and Institutional Management
Shih Chien University, Taipei, Taiwan (R.O.C.)

Appendix B - Focus Group Guide

Researchers Focus Group Guide

Purpose: To determine the importance of factors influencing residents' satisfaction with food and service quality.

Introduction: Hello, my name is Amber Howells and I am a graduate student at Kansas State University. I would like to thank you for volunteering to participate in our focus group today. Currently, I am working on a study regarding quality perceptions and resident satisfaction with the dining experience among assisted living residents. The objective of the focus group today is to discuss your thoughts about your dining experiences in this facility. I would like to obtain your opinions on factors about the dining experience that could be improved to increase your satisfaction with mealtimes.

Disclosure: This focus group will last approximately one hour. However, please take your time when answering questions because your thoughts and opinions are important to me. Your identity and answers will not be disclosed to anyone, including the staff of this facility. If at anytime you feel uncomfortable or wish to discontinue participating in this focus group, you are allowed to leave. If you have any questions regarding this study, please contact the principal researcher, Dr. Carol Shanklin. If you have questions regarding the use of human subjects, please contact the Office of Research and Sponsored Programs. The contact information for these offices, as well as your rights regarding participation in this focus group, are in the consent forms that I have provided to you. Let's review the consent forms at this time. After reading the consent form carefully, please sign it if you agree to the conditions. One copy is for you to keep; please return the other copy to me for my records. During our discussion today, my assistant and I will be taking notes so we will not forget all the important information you share with us. If you agree, we would like to tape record our session. Does anyone object?

Guidelines: Today I will be asking questions regarding your dining experience. Please share your thoughts and opinions. There are no wrong answers, but please realize that there may be different opinions within the group. Everyone's thoughts and opinions are important for me to hear. Thus, it is important that only one person speaks at a time. Please be respectful of other group members at all times.

Closing: I would like to thank you for your participation in this focus group. Your thoughts and opinions on your dining experience in this facility will be helpful in creating a questionnaire that is appropriate to distribute to assisted living residents. Your answers will be helpful to determine factors of the dining experience that are important to assisted living residents. The results of this study will help administrators of assisted living facilities discover areas of the dining experience that require improvement. The long-term goal of my project is to identify ways to improve the overall dining experience for assisted living residents and ultimately their quality of life.

Focus Group Questions

1. Please describe specific mealtime experiences at this facility that you really like?

2. Please describe specific mealtime experiences at this facility that you really do NOT like?

3. In your opinion, what features should be provided for an excellent dining experience?

4. What features of the actual food served at mealtimes do you feel contributes to quality food?

5. What characteristics of the service staff in the dining room affect your perceptions of your dining experience?

6. What choices regarding mealtimes are important to you?

7. Why are choices regarding mealtimes important to you?

8. What aspects of the dining room environment impact your perceptions of your dining experience?

Focus Group Informed Consent Form

PROJECT TITLE: The Impact of Perceived Quality on Resident Satisfaction of the Dining Experience Among Assisted Living Residents.

APPROVAL DATE OF PROJECT: July 18, 2006 **EXPIRATION DATE OF PROJECT**: July 18, 2009

PRINCIPAL INVESTIGATOR: Dr. Carol Shanklin (785-532-7927)

CO-INVESTIGATOR(S): Dr. Betsy Barrett (785-532-2208), Dr. Gayle Doll (785-532-5945), Dr. Chihyung Ok (785-532-2207), Amber Howells (785-532-5513)

CONTACT NAME AND PHONE FOR ANY PROBLEMS/QUESTIONS: Dr. Carol Shanklin (785-532-7927) shanklin@ksu.edu

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· Rick Scheidt, Chair, Committee on Research Involving Human Subjects, 203 Fairchild Hall, Kansas State University, Manhattan, KS 66506, (785) 532-3224.

· Jerry Jaax, Associate Vice Provost for Research Compliance and University Veterinarian, 203 Fairchild Hall, Kansas State University, Manhattan, KS 66506, (785) 532-3224.

SPONSOR OF PROJECT: Peine Grant from the Department of Human Nutrition

PURPOSE OF THE RESEARCH: This is a research project being conducted to evaluate quality perceptions and resident satisfaction with the dining experience in assisted living facilities. These focus groups will help the researchers develop a questionnaire to adequately evaluate resident satisfaction with the dining experience.

PROCEDURES OR METHODS TO BE USED: Focus groups will be used to ask residents questions regarding their dining experiences at their assisted living facilities. Researchers will take notes and audio tape conversation between the mediator and participants.

LENGTH OF STUDY: One year; each focus group will be approximately one hour

RISKS OR DISCOMFORTS ANTICIPATED: No Known Risks

BENEFITS ANTICIPATED: 1. To provide recommendations to assisted living facility administrators and foodservice directors on how they can meet the needs of their residents and ultimately improve the residents' quality of life.
2. To develop a reliable and valid questionnaire to administer to a larger sample of assisted living residents.

EXTENT OF CONFIDENTIALITY: Responses will remain confidential and anonymous

TERMS OF PARTICIPATION: **I understand this project is research, and that my participation is completely voluntary. I also understand that if I decide to participate in this study, I may withdraw my consent at any time, and stop participating at any time without explanation, penalty, or loss of benefits, or academic standing to which I may otherwise be entitled.**

I verify that my signature below indicates that I have read and understand this consent form, and willingly agree to participate in this study under the terms described, and that my signature acknowledges that I have received a signed and dated copy of this consent form.

Participant Name: _____

Participant Signature: _____ Date: _____

Witness to Signature: (project staff) _____ Date: _____

Appendix C - Questionnaire Draft

Questionnaire Cover Letter

[Date]

Dear Resident,

A research team from the Department of Hotel, Restaurant, Institution Management and Dietetics at Kansas State University is conducting a research study evaluating quality perceptions and resident satisfaction with the dining experience in assisted living facilities. As a resident in (Name of Assisted Living Facility) you have been selected to participate in this study. The purpose of this study is to evaluate factors of the dining experience and their impacts on your satisfaction with mealtimes in your facility. Results from this study will assist administrators and foodservice directors to improve the quality of the dining experience, as well as assist in improving the quality of life for residents in assisted living facilities.

Your input is important for the success of this study. Please take a few minutes to complete the questionnaire. Your participation is voluntary and your responses will remain confidential and anonymous. Only summary results will be reported. No individual responses will be disclosed. Assistants will be available to assist you in completing the questionnaire if needed. Returning the questionnaire indicates that you are volunteering to participate in this study. This letter does not need to be returned with the questionnaire. You may keep this letter for your personal records. PLEASE RETURN THE QUESTIONNAIRE TO (SPECIFIC PERSON/PLACE) BY (DATE).

If you have any questions about this study, please feel free to contact Dr. Carol Shanklin at 785-532-7927 or shanklin@ksu.edu, or Mrs. Amber Howells, RD at 785-532-5513 or amberkstate@yahoo.com.

Thank you for your time and participation.

Sincerely,

Amber Howells, R.D.
Master's Student

Carol Shanklin, Ph.D., R.D.
Associate Dean, KSU Graduate School

For questions about your rights as a participant or the manner the study is conducted, you may contact Dr. Rick Scheidt, Chair of Committee on Research Involving Human Subjects, (785) 532-3224, 203 Fairchild Hall, Kansas State University, Manhattan, KS 66506.

Final Questionnaire

EVALUATION OF MEALTIME QUALITY

INSTRUCTIONS: The following set of statements asks for your opinion regarding the foodservice at (Name of Assisted Living). Using the scale below, please indicate the extent to which you agree with the statement as it pertains to the foodservice at (Name of Assisted Living). Please circle your response using the scale indicated. There are no right or wrong answers. Feel free to honestly express your opinions. Your participation is appreciated.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. Foods taste good.	1	2	3	4	5
2. Foods are served at the appropriate temperature (hot food is hot, cold food is cold).	1	2	3	4	5
3. A variety of foods are offered.	1	2	3	4	5
4. The quality of food is consistent each time it is served.	1	2	3	4	5
5. The texture and tenderness of foods are appropriate.	1	2	3	4	5
6. The foods are served attractively.	1	2	3	4	5
7. Foods served are high in nutritional value.	1	2	3	4	5
8. A variety of food preparation methods are used.	1	2	3	4	5
9. The employees' appearances are neat.	1	2	3	4	5
10. The employees are well trained and competent in service skills.	1	2	3	4	5
11. The employees in the dining room are attentive to my needs.	1	2	3	4	5
12. The employees treat me with respect.	1	2	3	4	5
13. Employees in the dining room have pleasant attitudes.	1	2	3	4	5
14. The employees in the dining room are courteous and friendly.	1	2	3	4	5
15. The employees in the dining room socialize/talk with me during mealtimes.	1	2	3	4	5
16. The employees use safe food handling practices.	1	2	3	4	5
17. The foods are served at the time promised.	1	2	3	4	5

EVALUATION OF MEALTIME QUALITY--CONTINUED

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
18 I choose the food that I want to eat at mealtimes.	1	2	3	4	5
19. The menu provides choices.	1	2	3	4	5
20. I can choose the location where I would like to eat my meals (dining room, my room, restaurant, etc.).	1	2	3	4	5
21. I can choose the location in the dining room where I sit.	1	2	3	4	5
22. I choose the time when meals are served to me.	1	2	3	4	5
23 I choose the portion size or amount of food I wish to receive at mealtimes.	1	2	3	4	5
24. If I do not like what I am served at a meal, I can request an alternate item.	1	2	3	4	5
25. I am allowed to keep food in my room.	1	2	3	4	5
26. There are adequate choices for special diets (for diabetics, low salt, etc.).	1	2	3	4	5
27. There is flexibility of meal schedules to accommodate for appointments.	1	2	3	4	5
28. I can request “To Go” meals to accommodate my appointments.	1	2	3	4	5
29. I have the opportunity to provide input into the menu choices.	1	2	3	4	5
30. There is adequate lighting in the dining room.	1	2	3	4	5
31. The temperature in the dining room is comfortable.	1	2	3	4	5
32. The scents in the dining room are pleasant.	1	2	3	4	5
33. Offensive noise during mealtimes is limited.	1	2	3	4	5
34. There is enough space in the dining room to accommodate my guests.	1	2	3	4	5

EVALUATION OF MEALTIME QUALITY—CONTINUED

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
35. The table setting and decorations are attractive.	1	2	3	4	5
36. I am physically comfortable while dining during mealtimes.	1	2	3	4	5
37. The décor in the dining room is attractive.	1	2	3	4	5
38. The silverware, glassware, and china are attractive.	1	2	3	4	5
39. The dining room is clean.	1	2	3	4	5
40. The dining room is a home-like/ family environment.	1	2	3	4	5
41. The dining room is comfortable and easy to move around in.	1	2	3	4	5
42. I enjoy celebrating special occasions at mealtimes (i.e. holidays, birthdays, etc.).	1	2	3	4	5
43. Mealtimes are a time for me to socialize with other residents and staff members.	1	2	3	4	5
44. I am able to interact with the facility's dietitian.	1	2	3	4	5
45. If substitutions to the menu items are made, staff communicates these changes to me before mealtimes.	1	2	3	4	5

OVERALL PERCEPTION OF MEALTIMES

	Very Dis-satisfied	Dis-Satisfied	Neutral	Satisfied	Very Satisfied
1. With the foods served, I feel	1	2	3	4	5
2. With the service provided, I feel	1	2	3	4	5
3. With the amount of choices I can make about my meals, I feel	1	2	3	4	5
4. With the dining room atmosphere, I feel	1	2	3	4	5
5. With the overall dining experience, I feel	1	2	3	4	5
6. With the overall facility, I feel	1	2	3	4	5

ABOUT YOURSELF

	Very Bad	Bad	Fair	Good	Excellent
1. How would you rate your health in general?	1	2	3	4	5
2. For your age, would you say that your health status is:	1	2	3	4	5
3. Compared to other people of your age, how would you rate your health status at the present time?	1	2	3	4	5
4. How would you rate your present ability to taste food?	1	2	3	4	5
5. How would you rate your present sense of smell?	1	2	3	4	5
6. How would you rate your ability to chew a variety of foods?	1	2	3	4	5
8. How would you rate your present ability to swallow semi-solid items such as foods?	1	2	3	4	5
9. How would you rate your present ability to swallow thin liquids?	1	2	3	4	5

CONTINUED

MORE ABOUT YOURSELF

INSTRUCTIONS: The following set of statements asks you for information about yourself. This information will be kept confidential. No individual information will be reported.

1. What is your gender? _____ Male _____ Female

2. What is your marital status? _____ Single _____ Married
   _____ Widowed _____ Divorced

3. What is your living status? _____ Living alone in your assisted living apartment.
   _____ Living with your spouse in your assisted living apartment.

4. What year were you born? _____

5. What date did you move into Stoneybrook Assisted Living? ____(Year) _____(Month)

6. What is your highest education level?
   _____ Elementary School _____ High School _____ Bachelor Degree
   _____ Master Degree _____ PhD

7. How often do you eat in the dining room provided at Stoneybrook Assisted Living?

   Breakfast: _____ times per week Lunch: _____ times per week
   Dinner: _____ times per week Other: please specify: _____

PLEASE RETURN THE COMPLETED QUESTIONNAIRE TO ME TODAY OR ADMINISTRATOR'S NAME BY DATE.

THANKS FOR YOUR ASSISTANCE