IDENTIFYING SERVICE ATTRIBUTES AFFECTING SENIORS' PERCEPTIONS OF RESTAURANTS IN ASSISTED LIVING FACILITIES (ALFS) IN THE U.S.

Erick KONG
California State University, East Bay, United States
E-mail: erick.kong@csueastbay.edu

Hyunsuk CHOI
California State University, Sacramento, United States
E-mail: choi@csus.edu

Saehya ANN
(Corresponding Author)
California State University, East Bay, United States
E-mail: saehya.ann@csueastbay.edu

Abstract

Purpose – This study aims to identify significant service attributes affecting residents' perceptions of restaurant services in Assisted Living Facilities (ALFs) in the United States, using the DINESERV model, Importance–Performance Analysis (IPA), and paired-samples t-tests.
Methodology/Design/Approach – The study targeted seniors who have lived, or are currently living, for at least three months in independent or assisted living facilities in the United States since 2000. A total of 631 valid questionnaires were collected. The data were analyzed using SPSS 25.0. Descriptive statistics were used to summarize the data, and IPA was conducted to examine service attribute importance and performance. In addition, paired-samples t-tests were performed to test statistically significant differences between importance and performance scores across service dimensions.
Findings – The results showed that the overall performance mean (3.942) was slightly lower than the overall importance mean (3.977). The paired-samples t-test results revealed significant differences in Reliability, Responsiveness, and Assurance, while no significant differences were found in Tangibles, Empathy, and Special ALF Services. The findings highlight the importance of service attributes such as cleanliness, safety, reliability, comfort, and dietary considerations, which are particularly critical in senior dining environments.
Originality of the research – This study extends the application of the DINESERV model by integrating IPA and inferential statistical testing (paired-samples t-tests) in the context of Assisted Living Facilities. It provides a resident-centered evaluation of dining services and offers empirical evidence for improving service quality in senior care environments.
Keywords DINESERV, Assisted Living Facilities (ALF), Seniors, Importance–Performance Analysis, Service Quality

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INTRODUCTION

Despite the growing body of hospitality and tourism research focused on senior consumers, existing studies have largely concentrated on seniors' travel motivations, leisure participation, lodging preferences, and general dining behaviors in commercial restaurant settings. Comparatively little empirical attention has been given specifically to restaurant service quality in assisted living facilities (ALFs), particularly how senior residents evaluate dining service quality within these residential care environments. This gap is particularly notable given that restaurant dining services are a core component of daily life in ALFs and play a critical role in residents' health, satisfaction with dining services, and overall dining experience.

From a theoretical perspective, much of the existing restaurant service quality literature relies on established frameworks such as SERVQUAL and DINESERV, which were originally developed for general restaurant and hospitality contexts. While these models have been widely validated, their applicability to restaurant dining services in senior residential care environments (ALFs) remains underexplored. In particular, there is limited theoretical understanding of how age-related factors such as physical limitations, health considerations, safety concerns, and emotional security influence seniors' evaluations of restaurant service quality. As a result, current service quality theory offers an incomplete explanation of how seniors perceive and evaluate restaurant dining services in ALFs.

From an empirical standpoint, prior studies have seldom examined the alignment or misalignment between what senior residents consider important and how they perceive actual performance in restaurant dining services within ALFs. Few studies have systematically assessed these perceptions using importance–performance comparisons in restaurant service contexts in ALFs, leaving managers with limited empirical guidance on where to prioritize resources for restaurant service improvement. Moreover, residents' perspectives in relation to restaurant service quality in ALFs have often been underrepresented.

To address these gaps, this study applies DINESERV as the overarching restaurant service quality framework, combined with Importance–Performance Analysis (IPA), to examine restaurant service quality in ALFs from the perspective of senior residents in the United States. By empirically identifying which restaurant service attributes are most important to seniors and how well those attributes are currently performed, this research extends restaurant service quality theory into assisted living dining

environments. In doing so, the study contributes to both theory development and managerial practice by offering a more nuanced, resident-centered understanding of restaurant dining services in ALFs.

1. CONCEPTUAL BACKGROUND

1.1 Restaurant Service Quality and DINESERV Framework

There are several important and popular instruments that have been widely used in the hospitality industry to measure the quality of service attributes. According to Craig and Steven (2006), SERVQUAL is an instrument that measures the quality of service as perceived by customers by assessing the gap between their expectations and their actual experiences. In short, it evaluates how well a service provider performs relative to what customers believe should be delivered. There are five dimensions that measure consumer perceptions of service quality, it includes: reliability, assurance, responsiveness, tangibles, and empathy (Parasuraman et al., 1988).

DINESERV on the other hand is an adapted version of SERVQUAL that measures customer's perception of restaurant service quality (Fan et al., 2017). According to Stevens et al. (1995), DINESERV is a 29-item instrument that measures the five dimensions of dining service performance.

DINESERV is vital in understanding the relationship on how customers perceive dining experiences because of its core variables in tangibles, reliability, responsiveness, assurance, and empathy that directly impact their well-being and perceptions of service quality (Kim et al., 2003).

According to Chun and Nyam-Ochir (2020), high quality tangibles such as accessible seating, clear signage, and comfortable lighting, support physical ease and reduce environmental stress. In addition, Kim et al. (2009) pointed out that reliability and responsiveness influence consumers' sense of security and service efficiency. Moreover, Choi and Lee (2024) revealed that assurance reflected in staff competence and courtesy, strengthens trust. Lastly, empathy affirms dignity and emotional comfort (Hansen, 2014).

Using DINESERV, restaurant managers can gain insight on customer experience and identify areas for improvement, therefore improving service quality. Furthermore, DINESERV provides a quantifiable measure of customer expectations and perceptions (Kim et al., 2009). Therefore, it is imperative that restaurants use instruments such as DINESERV to assess their service quality.

1.2 ALF Context and Service Environment

According to the National Institute on Aging (NIA), ALF is designed for individuals who require assistance with daily activities, but not to the extent necessitated by a nursing home. These facilities vary in size, accommodating anywhere from 25 to over 100 residents (NIA, October 2023). In addition, Independent Living Facilities (ILFs) are an extension within ALF where residents require little to no assistance but receive the same type of services as ALF (Chornoboy & Harvey, 1988).

NIA also points out that ALF and ILF's main services is to provide residents, mostly senior citizens lodging and dining services where they live in their own apartments or rooms but share common dining and recreation areas (Yi et al., 2020). A typical dining service at an ALF or ILF includes up to three meals a day at the onsite restaurant (Buzalka, 2019).

Furthermore, additional services provided by ALF include help with personal care, medication management, housekeeping, laundry, round-the-clock supervision, security, on-site staff, and therapeutic recreation activities (Mueller et al., 2021).

1.3 ALF Industry Overview and Market Facts

According to the National Center for Assisted Living (NCAL, 2021), United States' ALF market and value is at a rapidly expanding multi-billion-dollar segment due to aging population demand. It is estimated that the current market's total value is between $44 billion to over $90 billion. As of 2024–2025, the United States contains approximately 30,000 to 32,000 ALFs, collectively offering nearly 1.2 million licensed beds (American Health Care Association. 2025).

1.4 ALF Service Components Related to Dining and Recreation Therapy

As research has shown, ALF provides a variety of services that include dining and recreation therapy services (Searle & University, 2023). A typical dining service at an ALF or ILF includes up to three meals a day at the onsite restaurant (Buzalka, 2019).

Recreation Therapy services that are available at ALF provide therapeutic recreation activities that impact overall health and well-being by increasing cognitive, social, and emotional functioning (Foo et al., 2024). According to American Therapeutic Recreation Association (ATRA), Recreation Therapy is aimed to restore, remediate, or rehabilitate the client's level of functioning (ATRA, 2025).

1.5 Recreation Therapy Service

In contrast, Recreation Therapy services that are available at ALF provide therapeutic recreation activities that impact their overall health and well-being by increasing their cognitive, social, and emotional functioning (Foo et al., 2024). According to American Therapeutic Recreation Association (ATRA), Recreation Therapy is aimed to restore, remediate, or rehabilitate the client's level of functioning and independence in life activities (ATRA, 2025). Recreation Therapists work in a variety of settings including ALF where they utilize their unique expertise to help individuals overcome barriers to well-being and participation in meaningful leisure activities (ATRA, 2025). According to Kim et al. (2020) therapeutic recreation programs are effective in bringing positive changes to the elderly and the level of the effect is considerable. Moreover, therapeutic recreation therapy programs have a relatively high effect on the social, emotional, physical, and cognitive domain (Loy et al., 2021).

1.6. Research Gap and Absence of DINESERV in ALF Context

While ALF provides services in dining, lodging, and recreation therapy, there has been little to no research on seniors' experience on the quality of service using service quality instruments in ALF settings. As mentioned previously, DINESERV is a standardized instrument designed to evaluate perceived restaurant service quality (Stevens et al., 1995). Although originally developed for the hospitality industry, its theoretical foundations in service quality, consumer perception, and expectation-performance gaps make it relevant to human-service environments. From a theoretical perspective, dining services in ALF represent a hospitality-based service encounter where service quality dimensions influence seniors' overall experience. Therefore, applying DINESERV in ALF settings provides an opportunity to extend restaurant service quality theory into senior living environments and address a clear gap in the literature.

Based on these theoretical and empirical gaps, this study investigates restaurant service quality perceptions among senior residents in ALFs using DINESERV and IPA. Specifically, this study addresses the following research questions:

1. What restaurant service quality attributes are considered important by senior residents in Assisted Living Facilities (ALFs)?
2. How do senior residents perceive the performance of restaurant service quality attributes in ALFs?
3. To what extent do gaps exist between the importance and performance of restaurant service quality dimensions in ALFs?
4. Which restaurant service attributes require managerial attention according to the Importance–Performance Analysis (IPA) framework?

2. METHODOLOGY

2.1. Measurement Development & Survey Design

The original DINESERV (Stevens et al., 1995) survey instrument consists of 29 questions measuring five factors. As this is the first attempt to measure restaurant service quality in ALFs in the U.S., it is interesting to use the original DINESERV as is. Twenty eight of the original DINESERV questions were utilized in this study. The first original DINESERV question, which measures the attractiveness of the parking area and building exterior was not used in this study, as most senior residents living at ALFs do not need to drive to reach the restaurants and the restaurants are within walking distance of the buildings where they live. Two new questions were added to measure a special restaurant service factor for seniors, specifically in-room food service and dietary restriction food options. Therefore, thirty questions were used in this study to measure restaurant service quality in ALFs in the U.S.

The IPA is the essential analysis for this research to investigate the differences between the importance level and performance level of ALFs service quality in their restaurants. Although more advanced variants of IPA have been proposed in the literature, this study employs the traditional self-stated IPA approach due to its suitability for exploratory research and its ease of interpretation. Simple IPA allows for a direct comparison between importance and performance attributes, which is particularly appropriate when examining service quality perceptions among older adults. The researchers acknowledge the limitations of simple IPA, including potential self-stated importance bias and its descriptive nature. However, the primary objective of this study is to identify key service quality attributes that require managerial attention in assisted living facility (ALF) dining services in the U.S. context, rather than to establish causal relationships. As such, the simplicity and clarity of the traditional IPA method provide practical and theoretically meaningful insights that are well aligned with the study's research objectives.

The measurement for performance and importance was developed to have the same set of attributes (total 30 items) and the same scale (Likert 5-point scale), so that importance and performance can be directly compared for the same attributes via the IPA grid. Responses to importance/performance were scored on a Likert five-point scale: 1 for "very unimportant/ performance", 2 for "low importance/performance", 3 for "neutral", 4 for "high importance/performance", and 5 for "very high importance/performance".

The first version of the survey questionnaire was reviewed by two recreation industry professionals who are experts on services provided by ALFs to ensure content validity. Cronbach's alpha was used to analyse its reliability ($\alpha > 0.70$). There are five sections within the questionnaire. First, respondents were asked about their demographic information. Second, respondents

were asked to rate the importance of the attributes associated with the experience at the ALFs based on five original DINESERV dimensions (Assurance, Empathy, Reliabilities, Tangibles, Responsiveness) and one special service provided by the ALF, using a 5-point Likert scale ranging. The third section measured respondents' perceptions of experience at the ALFs on the same attributes that were used to rate the importance.

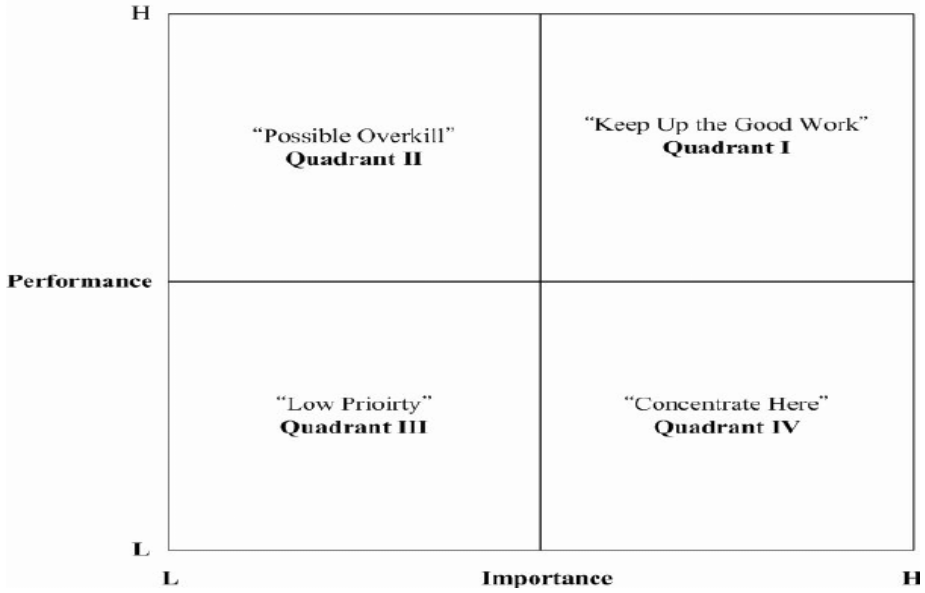
2.2. Importance-Performance Analysis (IPA)

Importance-Performance Analysis (IPA) is a widely recognized and effective method for evaluating service quality. In the context of assisted living facility restaurants, identifying key service attributes is essential for enhancing overall quality. This study is trying to demonstrate that IPA serves as a valuable analytical tool, helping to pinpoint critical concerns for restaurant managers and operators at ALFs. Additionally, the IPA perceptual map visually highlights the relative positioning of various restaurant attributes, emphasizing the areas where management should focus their improvement efforts.

According to Chu and Choi (Oh, 2001), IPA presents importance and performance on a two-dimensional plot, with importance on the vertical axis and performance on the horizontal axis. The plot is divided into four quadrants, each representing different levels of importance and performance, providing distinct managerial recommendations. The quadrant labels correspond to different marketing strategies, making the interpretation of the IPA plot straightforward.

As illustrated in Figure 1, Quadrant I, "Keep Up the Good Work," includes attributes that customers consider highly important and where the organization performs well. Quadrant II, "Possible Overkill," represents attributes that are less important to customers but receive high performance ratings. Quadrant III, "Low Priority," consists of attributes with below-average importance and performance, making them less critical for resource allocation. Finally, Quadrant IV, "Concentrate Here," identifies attributes with high importance but low performance, signaling the need for immediate improvement efforts.

Figure 1: **Importance vs. Performance Matrix**



2.3. Data Collection

The target population for this study was seniors who have lived or are currently living for at least three months at one of the ALFs in the U.S. since 2000. This study used AARP's definition of seniors, referring to individuals who are 50 years or older.

The researchers used a screening question at the beginning of the survey to ensure that respondents met the study criteria. The survey was administered using an online survey platform, Qualtrics, and data were collected through the Qualtrics research panel using a convenience sampling approach. Participants were recruited based on predefined eligibility criteria rather than random selection.

A total of 631 questionnaires were obtained. Of these, 75 responses were removed due to incompleteness or unusable data, resulting in 556 valid surveys for analysis. Approval from the Institutional Review Board (IRB) of the university was obtained prior to data collection.

While self-stated importance bias cannot be completely eliminated, this study acknowledges this limitation and mitigates its impact by emphasizing relative comparisons within the IPA framework and by interpreting findings in conjunction with performance ratings.

2.4. Data Analysis

The collected data were analyzed using the SPSS 25.0 statistical package. Descriptive statistics were used to summarize the data. In order to better understand the importance and performance of restaurants in the ALF, IPA was performed. The mean scores for importance and performance attributes were calculated for the IPA analysis. The present study used the grand mean values as the crosshair to separate the grid into four different quadrants. In addition, the average importance and performance ratings for each restaurant quality attribute were calculated and subsequently plotted on the IPA figure. Furthermore, paired-samples t-tests were conducted to examine whether statistically significant differences existed between the importance and performance scores across restaurant service quality dimensions.

3. RESULTS

3.1. Respondent Profile

The demographic characteristics of 556 respondents were identified through frequency and descriptive analyses (see Table 1). A majority of respondents were female (54.5%) between 50 and 59 years of age. In terms of marital status, 46% of the respondents were married and 26.4% were single. More than half of respondents had either a community college (30%) or a bachelor's degree (28.8%). In terms of household income, 55.4% of respondents were less than $60,000. Also, a majority of regional locations where the residents are from were South (38.9%).

Table 1: **Demographic profile of respondents**

Demographic Variable	N	Valid %	Demographic Variable	N	Valid %
Gender	556		Education Level	556	
Male	248	44.6	No college	99	17.8
Female	303	54.5	Community college (2 year institution)	167	30.0
Non-binary / third gender	4	.7	Bachelors	160	28.8
Prefer not to say	1	.2	Masters	89	16.0
Age	556		Doctorate	29	5.2
50-59	375	67.4	Others	12	2.2
60-69	125	22.5	Household Income	556	
70-79	43	7.7	Less than $30,000	123	22.1
80 and older	13	2.3	$30,000 to $39,999	66	11.9
Race	556		$40,000 to $49,999	48	8.6
White	114	20.5	$50,000 to $59,999	71	12.8
Hispanic	112	20.1	$60,000 to $69,999	44	7.9
Asian	98	17.6	$70,000 to $79,999	43	7.7
Black or African American	121	21.8	$80,000 to $89,999	26	4.7
American Indian or Alaska Native	59	10.6	$90,000 to $99,999	35	6.3
Native Hawaiian or Pacific Islander	13	2.3	$100,000 to $124,999	41	7.4
Others	39	7.0	$125,000 to $149,999	16	2.9
Marital Status	556		Above $150,000	43	7.7
Single	147	26.4	Regional Location	553	
Married	256	46.0	Northeast	92	16.6
Widowed	58	10.4	Midwest	108	19.5
Divorced	72	12.9	West	138	25.0
Separated	23	4.1	South	215	38.9

3.2 Importance-Performance Analysis

3.2.1 Reliability Analysis

Prior to conducting the Importance–Performance Analysis (IPA), reliability analysis was performed to assess the internal consistency of the measurement scales using Cronbach's alpha coefficients. The results indicated that all five original DINESERV dimensions demonstrated good reliability for both the importance and performance measures, with Cronbach's alpha values ranging from .81 to .90.

In addition, the newly developed factor for this study, "Special ALF Services for Seniors in Need," also demonstrated acceptable internal consistency, with Cronbach's alpha values of .72 for the importance scale and .71 for the performance scale. Although these values were lower than those of the original DINESERV dimensions, they still exceeded the recommended threshold of .70, indicating acceptable reliability. Overall, the results suggest that the measurement items used in this study were reliable and appropriate for subsequent analyses.

3.2.2 Perceived Importance of the Restaurant Quality at the Assisted Living Facility (ALF)

The means of perceived importance of restaurant quality at the ALF were calculated as shown in table 2. The overall importance of the restaurant quality attributes of ALF was 3.977. The means in each of the category in perceived importance of the restaurant quality at the ALFs were compared, restaurant attributes in reliability were the most important attribute (M = 4.023) followed by Assurance (4.022). The means of these two categories were higher than the overall importance mean (3.977). In contrast, Responsiveness (3.97), Tangible (3.958), Empathy (3.958), and Special ALF services for seniors in need (3.905) were relatively less important restaurant quality attributes of ALF.

Out of 30 restaurant quality attributes of ALF, the mean importance score in the 11 attributes were higher than 4, meaning that the respondents ranked between "important" and "extremely important" in the 11 attributes. Furthermore, top four most important attributes included 1) clean restroom (4.17), 2) clean dining area and making residents feel personally safe (4.16), and 4) dependability and consistency (4.09). Two of the four top-ranked attributes are the items measuring the "Tangible" factor of DINESERV. In contrast, the restaurant quality attributes of an ALF ranked the least important were 1) a visually attractive dining area (3.72), 2) a visually attractive menu that reflects the restaurant's image (3.77), and 3) a décor in keeping its image and price range. The three attributes were in the attributes measuring the factor, Tangible.

3.2.3 Perceived Performance of the Restaurant Quality at ALFs

In addition, perceived performance of restaurant quality at ALFs means were calculated using descriptive statistics (See table 2). Overall, the performance mean (3.942) of the restaurant quality attributes of ALFs was slightly lower than the overall importance mean of restaurant quality attributes (3.977). When dimension means of perceived performance of the restaurant quality at ALFs were compared, restaurant attributes in Reliability (M = 3.975) were rated as the most performed attribute, followed by Tangible (3.96). The means of these two dimensions were higher than the overall performance mean (3.942). In contast, Empathy (3.936), Special ALF services for seniors in need (3.935), Assurance (3.927), and Responsiveness (3.905) were relatively less performed restaurant quality attributes of the ALF.

For individual restaurant quality attributes, the top four most well performed attributes included 1) clean restroom (4.07), 2) make feel personally safe (4.05), and 3) clean dining area and dependability and consistency (4.04). The two of the four top-ranked attributes belong to the tangible factor. In comparison, the restaurant quality attributes of ALFs that ranked the least performed were 1) during busy time, does employees shift and help each other maintain speed and quality of service (3.81), 2) has employees who are able to provide you with information about menu items, including ingredients and the way it is prepared (3.83), and 3) décor to maintain its image and their price range.

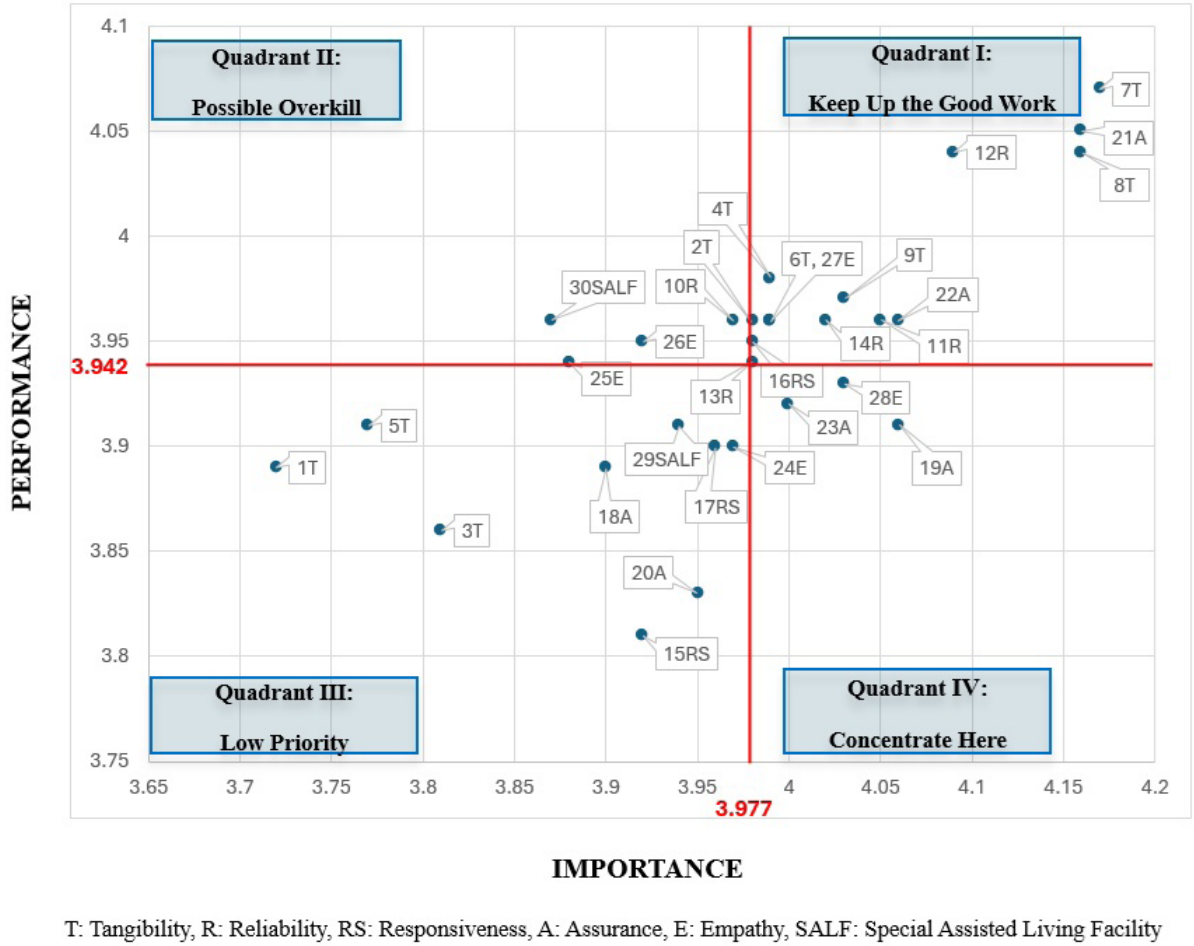
Table 2: **Importance & Performance means of ALF restaurant quality attributes**

Attribute		Importance (n=556)	Performance (n=556)	Cronbach's α (Importance / Performance)
The RESTAURANT(S) at the Assisted Living Facility…				
Tangible				**.90 / .90**
1. has a visually attractive dining area.		3.72	3.89	
2. has staff members who are clean, neat and appropriately dressed.		3.98	3.96	
3. has a decor in keeping its image and price range.		3.81	3.86	
4. has a menu that is easily readable.		3.99	3.98	
5. has a visually attractive menu that reflects the restaurant's image.		3.77	3.91	
6. has a dining area that is comfortable and easy to move around in.		3.99	3.96	
7. has restrooms that are thoroughly clean.		4.17	4.07	
8. has dining areas that are thoroughly clean.		4.16	4.04	
9. has comfortable seats in the dining room.		4.03	3.97	
	DM	**3.958**	**3.96**	
Reliability				**.81 / .83**
10. serves you in the time promised.		3.97	3.96	
11. quickly corrects anything that is wrong.		4.05	3.96	
12. is dependable and consistent.		4.09	4.04	
13. provides an accurate guest check.		3.98	3.94	
	DM	**4.023**	**3.975**	
Responsiveness				**.84 / .80**
14. serves your food exactly as you ordered it.		4.02	3.96	
15. during busy time, does employees shift and help each other maintain speed and quality of service.		3.92	3.81	
16. provides prompt and quick service.		3.98	3.95	
17. gives extra effort to handle your special requests.		3.96	3.9	
	DM	**3.97**	**3.905**	
Assurance				**.88 / .86**
18. has employees who can answer your questions completely.		3.9	3.89	
19. makes you feel comfortable and confident in your dealings with them.		4.06	3.91	
20. has personnel who are both able and willing to give you information about menu items, their ingredients and methods of preparation.		3.95	3.83	
21. makes you feel personally safe.		4.16 (2)	4.05	
22. has personnel who seem well-trained, competent and experienced.		4.06	3.96	
23. seems to give employees support so that they can do their jobs well.		4	3.92	
	DM	**4.022**	**3.927**	
Empathy				**.85 / .85**
24. has employees who are sensitive to your individual needs and wants, rather than always relying on policies and procedures		3.97	3.9	
25. makes you feel special.		3.88	3.94	
26. anticipates your individual needs and wants.		3.92	3.95	
27. has employees who are sympathetic and reassuring if something is wrong.		3.99	3.96	
28. seems to have the customers' best interests at heart.		4.03	3.93	
	DM	**3.958**	**3.936**	
Special ALF services for seniors in need				**.72 / .71**
29. dietary restriction needs		3.94	3.91	
30. In room food service		3.87	3.96	
	DM	**3.905**	**3.935**	
	OM	**3.977**	**3.942**	

Note. DM = Dimension Mean, OM = Overall Mean

Cronbach's α (I/P) = Cronbach's alpha values for importance and performance, respectively; values above .70 indicate acceptable reliability.

Figure 2: **IPA for restaurant quality of an ALF**



T: Tangibility, R: Reliability, RS: Responsiveness, A: Assurance, E: Empathy, SALF: Special Assisted Living Facility

The means of importance and performance of each restaurant quality attribute of an ALF were plotted in the Importance-Performance Analysis Grid (IPA Grid). The overall means for importance (3.977) and performance (3.942) were used for the placement of axes on the grid. As shown in figure 2, the four quadrants were labeled as "Keep Up the Good Work (Quadrant I)," "Possible Overkill (Quadrant II)," "Low Priority (Quadrant III)," "Concentrate Here (Quadrant IV)."

Thirteen restaurant quality attributes fell into Quadrant I, "Keep Up the Good Work." These attributes were "2-has staff members who are clean, neat and appropriately dressed.," "4-has a menu that is easily readable," "6-has a dining area that is comfortable and easy to move around in," "7-has restrooms that are thoroughly clean," "8-has dining areas that are thoroughly clean," "9-has comfortable seats in the dining room," "11-quickly corrects anything that is wrong," "12-is dependable and consistent," "14-serves your food exactly as you ordered it," "16-provides prompt and quick service," "21-makes you feel personally safe," "22-has personnel who seem well-trained, competent and experienced," "27-has employees who are sympathetic and reassuring if something is wrong." These thirteen attributes were ranked as important and well performing by seniors. In general, the results have shown that the restaurants at the assisted living facilities have performed effectively. However, despite performing effectively, there are only 4 attributes (7, 8, 12, and 21) that have a high-performance value or a score above 4.0. On the other hand, the performance values of the other nine attributes (2, 4, 6, 9, 11, 14, 16, 22, and 27) are less than 4.0, ranging from 3.95 to 3.97. In order to have high-performance values in the future, certain efforts must be made to improve these nine attributes in service quality to have a chance in having high-performance values in the future. In addition, almost half of the attributes are related to tangibility.

Interestingly, the attributes 7, 8, and 21 are ranked as the top three attributes in both importance and performance. These three attributes all fell into the "Keep up the good work" quadrant and indicate that people perceived these attributes to be the most important and also highest performing in restaurants of the ALF.

Quadrant II, "Possible Overkill", contained three attributes of low importance and high performance. Those attributes in quadrant II included "10-serves you in the time promised," "26-anticipates your individual needs and wants," and "30-In room food service." Even though respondents were satisfied with the attributes, the facilities should consider their present efforts and commitment to these attributes.

Quadrant III, labeled 'Low Priority,' contains ten attributes that were ranked as having relatively low importance and low performance. These attributes included: 1) has a visually attractive dining area, 2) has decor in keeping with its image and price

range, 3) has a visually attractive menu that reflects the restaurant's image, 4) during busy times, employees shift and help each other maintain speed and quality of service, 5) gives extra effort to handle special requests, 6) has employees who can answer questions completely, 7) has personnel who are both able and willing to provide information about menu items, ingredients, and preparation methods, 8) has employees sensitive to individual needs, rather than relying solely on policies, 9) makes you feel special, and 10) meets dietary restriction needs. Although these attributes are considered lower priority compared to others, some should not be entirely overlooked. For instance, attributes 17 (extra effort to handle special requests), 24 (sensitivity to individual needs), and 29 (dietary restriction needs) are close to the average importance and performance scores, indicating they are worth some attention in the marketing mix.

Quadrant IV, "Concentrate Here", indicated attributes that must be strategically chosen to improve the overall restaurant quality in ALF. A total of four attributes were perceived important to the respondents but failed to meet the expectations of the respondents. Those attributes were "13-provides an accurate guest check," "19-makes you feel comfortable and confident in your dealings with them," "23- seems to give employees support so that they can do their jobs well," and "28- seems to have the customers' best interests at heart." In particular, the attribute 19 (makes you feel comfortable and confident in your dealings with them) was very important (4.06), however the facilities performed below the average (3.96). Similarly, the attribute 28 (seems to have the customers' best interests at heart) was very important (4.03), however the facilities performed below the average (3.93). The gaps between these mean scores were substantial. Therefore, restaurant operators/managers at ALF must focus on improving this attribute.

3.3 Importance–Performance Comparison and Paired-Samples t-test Results

A paired-samples t-test was conducted to examine the differences between importance and performance scores across the five DINESERV dimensions and the newly added "Special ALF Services" factor.

The results showed that some dimensions exhibited statistically significant differences between importance and performance scores, while others did not. Specifically, significant differences were found in Reliability ($t = 2.87$, $p = .004$), Responsiveness ($t = 3.06$, $p = .002$), and Assurance ($t = 4.83$, $p < .001$), indicating that perceived service performance in these areas was significantly lower than the importance ratings.

However, no statistically significant differences were found for Tangibles ($t = 1.83$, $p = .067$) and Empathy ($t = 1.33$, $p = .185$), suggesting that residents' expectations and perceived performance in these dimensions were relatively aligned. Similarly, the newly developed "Special ALF Services" factor showed no significant difference between importance and performance ($t = -0.22$, $p = .982$), indicating a strong alignment between expected and perceived service levels.

Overall, the findings suggest that while most core service dimensions of DINESERV exhibit some level of performance gap, the Tangibles, Empathy, and Special ALF Services dimensions demonstrate perceived balance between importance and performance. The results are shown in Table 3.

Table 3: **Importance–Performance Comparison and Reliability Results (N=556)**

Dimension	Importance Mean (SD)	Performance Mean (SD)	Mean Difference	t	p
Tangibles	3.95 (0.72)	3.91 (0.70)	0.04	1.83	.067
Reliability	3.99 (0.75)	3.91 (0.77)	0.08	2.87	.004
Responsiveness	3.94 (0.77)	3.85 (0.77)	0.09	3.06	.002
Assurance	4.00 (0.73)	3.87 (0.73)	0.13	4.83	.000
Empathy	3.92 (0.76)	3.88 (0.75)	0.04	1.33	.185
Special ALF Services	3.90 (0.83)	3.90 (0.84)	0.00	-0.22	.982

4. DISCUSSIONS & IMPLICATIONS

4.1 Discussion: Importance–Performance Analysis of DINESERV Attributes in Assisted Living Facilities

This study explored four research questions concerning the importance, perceived performance, service gaps, and managerial priorities of restaurant services in Assisted Living Facilities (ALFs). Using the DINESERV model and Importance–Performance Analysis (IPA), the research investigated residents' evaluations of dining services in ALFs. The discussion is organized around the IPA quadrant results, paired-samples t-test comparisons between importance and performance scores, and an interpretation of attributes identified as lower managerial priorities.

4.1.1 IPA Quadrant Analysis of Service Attributes

The IPA results identified four attributes located in the high importance–high performance quadrant, representing areas where ALF dining services are effectively meeting residents' expectations. These attributes include clean restrooms, clean dining areas, feeling personally safe, and dependability and consistency. These findings indicate that fundamental service elements related to hygiene, safety, and reliability are well-managed within ALF dining environments. Previous research has similarly emphasized that cleanliness and safety are among the most important factors influencing older adults' dining satisfaction (Almanza et al., 2016; Strohl et al., 2012). Assisted Living Facilities provide a home-like environment for seniors, where daily meals and snacks represent a core component of care services. In this context, residents' emphasis on consistent and stable service delivery reflects their increased vulnerability due to age-related health conditions and physical limitations (Cook, 1998).

4.1.2 Paired-Samples t-test Results and Statistical Interpretation

The paired-samples t-test results provide statistical validation of the IPA findings by examining differences between importance and performance scores across service dimensions. Significant differences were found in Reliability, Responsiveness, and Assurance, indicating that performance in these areas does not fully meet residents' expectations. In these dimensions, importance scores were consistently higher than performance scores, suggesting the presence of service gaps in operational efficiency, service speed, and staff competence.

In contrast, no significant differences were found for Tangibles, Empathy, and Special ALF Services. These results indicate that residents' expectations and perceived service performance are generally aligned in these areas, particularly in physical environment quality, interpersonal care, and senior-specific service provisions. Overall, these findings confirm that while ALF dining services perform adequately in relational and environmental aspects, improvements are still required in core operational service delivery dimensions.

4.1.3 Low-Priority Attributes (Quadrant III) Analysis

The Quadrant III results indicate that several service attributes fall into the low importance–low performance category. These include visually attractive dining areas, decorative elements, and certain staff service functions such as handling special requests and providing detailed menu information. Although categorized as low priority, some attributes related to personalization and dietary accommodation show moderate importance levels, suggesting that they may still be relevant for specific resident groups. The results suggest that senior residents prioritize functional and practical service elements over aesthetic or experiential features. This aligns with previous research indicating that older adults tend to emphasize practicality, reliability, and comfort in service environments rather than visual appeal. The absence of significant gaps in many of these attributes further suggests that ALF dining services are generally meeting baseline expectations in these lower-priority areas.

4.2 Managerial Implications

Based on the key characteristics of senior dining preferences identified in this research, several managerial implications for ALF restaurant services are proposed.First, cleanliness remains a critical priority, as it was identified as both highly important and well-performing. Management should continue enforcing strict sanitation protocols, including daily cleaning schedules and regular inspections of dining areas and restrooms.Second, service reliability and consistency are essential. The significant gaps identified in these dimensions suggest a need for improved staff training, particularly in service timing, order accuracy, and operational coordination during peak periods.Given the importance of personal safety and comfort, facilities should ensure that dining environments are safe, accessible, and ergonomically designed. This includes appropriate seating arrangements, non-slip flooring, and adequate lighting. Although Tangibles, Empathy, and Special ALF Services did not show significant gaps, maintaining these service areas remains important to sustain overall satisfaction levels. Personalized services, including dietary accommodations and in-room food service, should be continuously monitored. The non-significant gap in Special ALF Services suggests that current practices are effectively aligned with resident expectations. Finally, while lower-priority attributes such as décor and ambiance are not central concerns, they should not be entirely neglected, as incremental improvements may contribute to long-term satisfaction.

4.3 Theoretical Implications

This study makes several theoretical contributions to the restaurant service quality literature by extending the DINESERV model into the context of Assisted Living Facilities (ALFs) using IPA. First, this research extends DINESERV beyond traditional restaurant environments into senior residential dining settings. The findings demonstrate that while core service dimensions remain relevant, their interpretation differs significantly in aging populations. The paired-samples t-test results further strengthen the IPA findings by providing statistical validation of service gaps across dimensions, enhancing the robustness of the model application. Second, the study highlights age as a critical factor influencing service quality perceptions. Seniors place greater emphasis on reliability, safety, and cleanliness compared to aesthetic or experiential attributes, suggesting that service quality

models should incorporate life-stage-based differences. The presence of non-significant differences in Tangibles, Empathy, and Special ALF Services suggests that certain DINESERV dimensions may operate differently in elderly care contexts compared to traditional restaurant environments. Third, this research suggests that emotional safety, trust, and service consistency should be more explicitly integrated into service quality models applied to aging populations.

5. LIMITATIONS AND FUTURE RESEARCH

This research is significant because Assisted Living Facilities (ALFs) in the United States remain an underexplored context in restaurant service quality literature. This study employed the well-established DINESERV framework to assess restaurant service quality in ALF dining settings. In addition, Importance–Performance Analysis (IPA) was used to compare importance and performance perceptions of service attributes. Given that this is one of the first studies to evaluate restaurant service quality in ALF dining environments in the United States, it provides a novel contribution to the literature.

While this study provides valuable insights, several limitations should be noted. First, DINESERV, as a standardized restaurant service quality instrument, may not fully capture all context-specific attributes relevant to senior populations. Future research may consider whether certain dimensions should be weighted differently for older adults, particularly those related to safety, comfort, and health-related needs. Expanding the scope to other aspects of ALF dining and hospitality services may further enhance understanding of service quality in these environments.

Second, this study focuses exclusively on ALFs in the United States. Given the global nature of population aging, future research should examine restaurant service quality in similar senior living contexts across different countries to allow for cross-cultural comparisons.

Third, collecting survey data from older adults was time-consuming and required extensive screening to ensure data quality. Future studies may benefit from incorporating qualitative methods such as interviews or focus groups to gain deeper insights into seniors' perceptions of restaurant service quality.

DECLARATION OF GENERATIVE AI AND AI-ASSISTED TECHNOLOGIES IN THE WRITING PROCESS

In preparing this paper, the authors used ChatGPT (OpenAI) to improve the clarity and readability of the Results section. Following the use of this tool, the authors reviewed and edited the content as necessary and take full responsibility for the content of the published article.

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