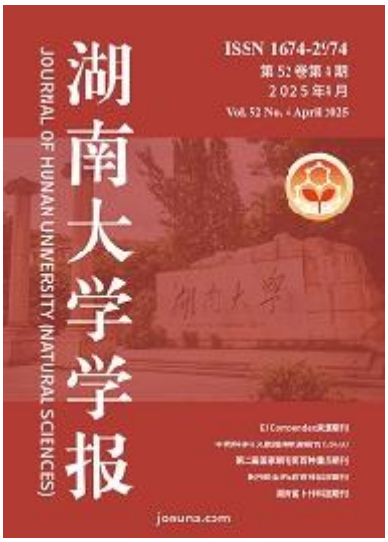

Journal of Hunan University

(Natural Sciences)

Vol. 52 No. 4

April 2025

Available online at

https://jonuns.com

Open Access Article

https://doi.org/10.55463/issn.1674-2974.52.4.8

An Empirical Assessment of Service Quality and Resident Satisfaction in Aging Homes in Bangladesh Using the SERVQUAL Model

MD Zakir Hossain[1*], Md. Abdul Kader[2], Hanif Hossain[3], Kaniz Fatema Ananna[4]

[1]Associate Professor and Chairman, Department of Government and Politics, Asian University of Bangladesh, Dhaka, Bangladesh

[2]Assistant Professor of Marketing, Department of Business Administration, Northern University Bangladesh, Dhaka, Bangladesh, email: shuvho33@gmail.com

[3]Assistant professor of Marketing, Department of Business Administration, Asian University of Bangladesh, Dhaka, Bangladesh, email: hanifdu355@gmail.com

[4]Lecturer in HRM, Department of Business Administration, Northern University Bangladesh, Dhaka, Bangladesh; email: ananna.du13@gmail.com

* Corresponding author: zakirhossain1957@gmail.com

Article History:

Received: March 2, 2025
Revised: April 11, 2025
Revised: April 19, 2025
Accepted: April 30, 2025
Published: May 30, 2025

Abstract: The purpose of the article is to empirically measure the satisfaction of residents in aging homes in Dhaka, Bangladesh, using the SERVQUAL model as the theoretical framework. The article describes a new empirical approach for assessing the quality of services in aging homes, based on the SERVQUAL dimensions: tangibles, reliability, responsiveness, assurance, and empathy, enabling a comprehensive evaluation of the factors influencing resident satisfaction.

Using a structured questionnaire administered in five aging homes—ProbinNibash, Azimpur Old People Age Home, Care Bangladesh, AshrayNibash, and AponNibash—and analyzing the data through Structural Equation Modeling (SEM) with Smart PLS, the authors identified that the Assurance dimension, particularly the knowledge and competence of caregivers, positively impacts overall satisfaction. In contrast, the Empathy, Reliability, and Responsiveness dimensions negatively affect satisfaction, indicating significant gaps in emotional support, timely care, and reliability. The Tangibles dimension showed only a moderate impact on satisfaction. As an example, we illustrate the proposed approach through the empirical analysis of these five aging homes in Dhaka. Our method allows policymakers and practitioners to identify service quality gaps and to develop targeted improvements. Although no quantitative performance indicators were explicitly reported, the approach facilitates actionable strategies for enhancing emotional support, responsiveness, and staff reliability. The new method for effectiveness evaluation is confirmed by the calculation and interpretation of SEM outputs, which validate the critical role of the Assurance dimension in overall resident satisfaction. New research results improve the understanding of how service dimensions contribute to elderly care outcomes in Bangladesh and can be used to inform policy reforms and targeted training programs for caregivers. This paper is novel because it applies the SERVQUAL framework and SEM-based analysis to a unique population—aging home residents in Bangladesh—thereby offering region-specific insights and actionable recommendations to enhance the well-being of this vulnerable group.

Keywords: Elderly Home Satisfaction, SERVQUAL Model, Structural Equation Modeling (SEM), Smart PLS, Elderly Care, Nursing Standards, Service Quality, Dhaka City.

基于SERVQUAL模型的孟加拉国养老院服务质量与住户满意度的实证评估

摘要： 本文旨在以 SERVQUAL 模型为理论框架，实证测量孟加拉国达卡市养老院住户的满意度。文章提出了一种新的实证评估方法，基于 SERVQUAL 模型的五个维度：有形性、可靠性、响应性、保证性和同理心，实现对养老院服务质量及其影响因素的全面评估。作者通过在达卡市五家养老院（ProbinNibash、Azimpur Old People Age Home、Care Bangladesh、AshrayNibash 和 AponNibash）发放结构化问卷，并利用 Smart PLS 软件进行结构方程建模（SEM）数据分析，发现“保证性”维度，尤其是护理人员的知识与能力，对总体满意度具有显著的正向影响。相比之下，“同理心”、“可靠性”和“响应性”维度对满意度产生了负面影响，显示出情感支持、及时护理及服务可靠性等方面存在显著不足。“有形性”维度对住户满意度的影响相对较小。

本文以达卡市这五家养老院为例，说明了所提方法的适用性。此方法有助于政策制定者和从业人员识别服务质量差距，并制定有针对性的改进措施。尽管未报告具体的量化绩效指标，但该方法能够为提高情感支持、响应性和护理人员可靠性提供可行的策略。SEM 输出的计算和解释验证了“保证性”维度在整体满意度中的关键作用，从而确认了该方法的有效性。新的研究成果深化了对服务质量维度在孟加拉国养老院护理结果中的作用机制的理解，可为护理人员培训项目及政策改革提供有益参考。**本文的创新之处在于**，首次将 SERVQUAL 框架与 SEM 分析方法应用于孟加拉国养老院住户这一独特群体，提供了具有地区特色的洞察与可操作性建议，以促进该脆弱群体的福祉提升

关键词： 养老院满意度；SERVQUAL 模型；结构方程建模（SEM）；Smart PLS；养老护理；护理标准；服务质量；达卡市

1. Introduction

1.1. The Research Background

In recent years, the need for high-quality elderly care services has become increasingly pressing, particularly in urban areas where traditional family structures are evolving, and many elderly individuals are left without familial support. Bangladesh, like many other developing countries, is experiencing significant socio-economic changes, and the demand for elderly homes is on the rise [1]. These shifts are driven by factors such as urbanization, the migration of younger generations for work and the growing participation of women in the workforce, which together contribute to a diminishing ability for families to care for their elderly members. As a result, older people care facilities are emerging as essential institutions, especially in Dhaka City, the country's densely populated capital [2].

Despite this growing demand, there remains a lack of understanding regarding the quality of services provided by elderly homes in Dhaka. The need for older people care homes is compounded by the increasing number of elderly individuals suffering from chronic diseases, physical disabilities, and mental health issues [3]. These conditions make it crucial for elderly care facilities to provide not only physical care but also emotional and psychological support. Unfortunately, in many developing countries, the healthcare infrastructure is underdeveloped, and the quality of elderly care is often suboptimal due to a lack of resources, untrained staff, and limited government support [4]. This situation raises important questions about the satisfaction levels of residents in these elderly homes and the factors that influence their perception of service quality.

To address these concerns, this study employs the SERVQUAL model, a widely used framework for assessing service quality across five key dimensions: tangibles, reliability, responsiveness, assurance, and empathy [5]. The SERVQUAL model has been extensively applied in various sectors, including healthcare, to evaluate and improve service quality by measuring the gap between customer expectations and their perceptions of the services received [6]. In the context of older people care, each dimension of the SERVQUAL model plays a critical role. For example, tangibles such as the physical environment, facilities, and cleanliness are essential in ensuring that elderly residents feel comfortable and secure. Similarly, reliability and responsiveness reflect the consistency and timeliness of care provided, which are crucial in managing chronic conditions and emergencies [7]. Meanwhile, assurance and empathy are vital in building trust between caregivers and elderly residents, fostering a supportive and compassionate environment that enhances their overall well-being.

This study is particularly relevant for Bangladesh, where research on older people care is still in its infancy, and policymakers are beginning to recognize importance of developing sustainable older people care services. Most studies on older people care in Bangladesh have focused on broader health care issues rather than the specific needs of elderly individuals residing in care homes [4]. Given the aging population and the challenges associated with providing adequate care, it is imperative to explore how service quality impacts resident satisfaction in elderly homes. By applying the SERVQUAL model, this research seeks to identify the key factors influencing satisfaction levels and provide actionable insights for improving service delivery in older people care homes in Dhaka City.

Moreover, the use of Structural Equation Modeling (SEM) in this study allows for a comprehensive analysis of the relationships between the various dimensions of service quality and overall resident satisfaction. SEM is a powerful statistical tool that enables researchers to examine complex relationships between observed and latent variables, making it ideal for understanding how different aspects of service quality interact to influence satisfaction [8]. By employing SEM, this study offers a nuanced understanding of the factors contributing to resident satisfaction and provides a robust foundation for future research in the field of older people care.

1.2. Objectives

The main objective was to empirically measure and analyze satisfaction levels of elderly home residents in Dhaka City, Bangladesh. More specifically, the study aimed to

1. Assess resident satisfaction across the five dimensions of the SERVQUAL model:

Tangibles (physical facilities and infrastructure)
Reliability (consistency in care and services)
Responsiveness (timely assistance and support)
Assurance (staff competence and knowledge)
Empathy (emotional care and individual attention)

2. Evaluate relationship between these service quality dimensions and overall resident satisfaction in five established elderly homes:

ProbinNibash, Azimpur Old Age Home, Care Bangladesh, AshrayNibash, AponNibash

3. Use Structural Equation Modeling (SEM) with Smart PLS to identify and measure the key factors that influence resident satisfaction in elderly's homes.

4. Provide evidence-based insights to help improve service quality and resident well-being in elderly homes across Dhaka City.

2. Literature Review and Development of the Hypotheses

Numerous studies have explored the concept of service quality in various sectors, including healthcare, hospitality, and elderly care [9]-[10]. However, limited research has been conducted specifically on elderly home satisfaction in Bangladesh, particularly in relation to the SERVQUAL model, which is widely used for

assessing service quality across five key dimensions: tangibles, reliability, responsiveness, assurance, and empathy [5]. This study addresses a critical gap by examining the relationship between these service quality dimensions and overall satisfaction in elderly homes in Dhaka City. The following section provides a review of the existing literature and the development of hypotheses based on the SERVQUAL model and related studies.

2.1 Tangibles

Tangibles refer to the physical facilities, equipment, and appearance of personnel within a service environment [5]. In the context of elderly homes, tangibles play a crucial role in influencing resident satisfaction, as the physical environment significantly impacts their comfort and quality of life. Studies have shown that well-maintained and esthetically pleasing environments contribute positively to service satisfaction, especially among vulnerable populations such as the elderly [11]. Specific elements within this dimension include cleanliness, quality of bedding, infrastructure, and overall living conditions. Previous research in health care settings highlights the importance of tangibles, noting that a clean and comfortable physical environment fosters a sense of well-being among residents [12].

Latent variables for tangibles:

- Cleanliness of the facilities
- Quality of the physical infrastructure

Hypothesis 1: Tangibles have a positive impact on elderly home satisfaction.

2.2. Reliability

Reliability is defined as the ability to perform the promised service dependably and accurately [5]. In elderly homes, reliability is often demonstrated through consistent care, timely medical attention, and the accurate fulfillment of residents' needs. Research has shown that residents in care facilities highly value reliability, as it directly influences their trust in the service provider and their sense of security [13]. For elderly residents, who often rely on daily medical care and assistance with routine activities, consistent service delivery is crucial for maintaining a stable and satisfactory living environment. Studies on older people care facilities indicate that gaps in reliability can lead to dissatisfaction, particularly in areas related to health care and daily living assistance [4].

Latent variables for reliability:

- Consistency in medical care
- Timeliness of assistance with daily activities

Hypothesis 2: Reliability has a positive impact on elderly home satisfaction.

2.3. Responsiveness

Responsiveness refers to the willingness to help customers and provide prompt service [5]. In elderly homes, this dimension is particularly important because residents often require immediate attention for medical or personal needs. The staff ability to respond quickly and efficiently to these needs significantly influences overall satisfaction. Research in the health care sector shows that responsiveness is a key determinant of patient satisfaction, with delayed responses often leading to frustration and negative perceptions of the service [14]. In the context of elderly homes, responsiveness includes both the speed and quality of the service provided by caregivers, which is essential in ensuring the safety and comfort of residents.

Latent variables for responsiveness:

- Speed of response to resident requests
- Availability of staff for assistance

Hypothesis 3: Responsiveness has a positive impact on elderly home satisfaction.

2.4. Assurance

Assurance refers to the knowledge and courtesy of employees and their ability to inspire trust and confidence [5]. In older people care homes, assurance is particularly important as residents are often in vulnerable states, both physically and mentally. Caregivers that are knowledgeable, courteous, and confident in their roles are more likely to inspire trust and improve the overall satisfaction of residents. Studies indicate that in health care settings, the assurance dimension significantly impacts patient satisfaction, as patients feel more secure when they perceive their caregivers to be competent and trustworthy [15]. For elderly residents, assurance also encompasses the emotional support provided by the staff, which is critical in fostering a safe and caring environment.

Latent variables for assurance:

- Knowledge and professionalism of the staff
- Emotional support provided by the caregivers

Hypothesis 4: Assurance has a positive impact on elderly home satisfaction.

2.5. Empathy

Empathy involves providing caring, individualized attention to customers [5]. In elderly homes, empathy is perhaps one of the most significant dimensions, as it directly affects the emotional and psychological well-being of residents. Elderly individuals often face physical limitations, isolation, and emotional stress, making empathetic care essential for their satisfaction. Previous research highlights the importance of empathy in health care settings, noting that personalized attention and emotional support from caregivers lead to higher levels of satisfaction [16]. Empathy in elderly homes is reflected in how well staff understand and address the unique needs of each resident, including their emotional and psychological challenges [17].

Latent variables for empathy:

- Individualized attention to resident needs

- Emotional care and support

Hypothesis 5: Empathy has a positive impact on elderly home satisfaction.

2.6. Elderly Home Satisfaction

Satisfaction in elderly home s is the overall evaluation of the service experience, considering the various dimensions of service quality. Elderly residents' satisfaction is influenced by their perceptions of the care they receive across the tangibles, reliability, responsiveness, assurance, and empathy dimensions [3]. Satisfaction is a key indicator of the success of older people care facilities, as it reflects the well-being and quality of life of the residents. Studies on older people care satisfaction emphasize the need for continuous improvement in service delivery to meet the evolving needs of elderly residents [18].

Latent variables for older patients' home satisfaction:

- Overall satisfaction with the care services
- Willingness to recommend the elderly home to others

Hypothesis 6: Elderly home satisfaction is influenced by all five dimensions of the SERVQUAL model.

2.7. Conceptual Framework

Based on the various hypotheses, the following conceptual framework was created for this study.

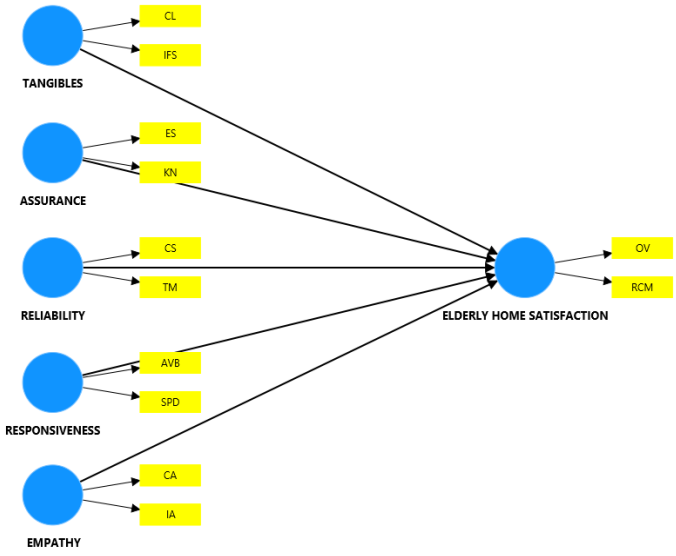

Figure 1. SERVQUAL using Smart PLS (developed by the authors)

3. Methodology

3.1. Questionnaire Design and Data Collection

The study used a structured questionnaire to collect primary data from elderly home residents in Dhaka City, Bangladesh. The questionnaire was divided into two sections: Part A gathered demographic information, while Part B focused on questions related to the SERVQUAL model, assessing service quality across five key dimensions—tangibles, reliability, responsiveness, assurance, and empathy. The aim was to measure the impact of these dimensions on the overall resident satisfaction.

Part A collected demographic details such as age, gender, education level, and the duration of stay in the elderly home. Part B included items specifically designed to assess each of the independent variables (the SERVQUAL dimensions) and the dependent variable (elderly home satisfaction). Each question was measured using a five-point Likert scale, where (1) represented "strongly disagree" and (5) represented "strongly agree."

The data were collected through an online survey using Google Forms. The questionnaire was initially developed in English and subsequently translated into Bangla to ensure clarity and understanding among the elderly participants. A native Bangla speaker with fluency in English conducted the translation, ensuring that the nuances of the questions were retained.

To recruit participants, the researchers contacted the management teams of five elderly homes in Dhaka City: ProbinNibash, Azimpur Old Age Home, Care Bangladesh, AshrayNibash, and AponNibash. After receiving permission, the research team distributed the survey via email or through family members for residents who had internet access. In cases where residents required assistance, caregivers helped administer the questionnaire on their behalf.

A total of 300 questionnaires were distributed across the five elderly homes, of which 270 were returned. After excluding 20 incomplete responses, 250 valid questionnaires were used for further analysis. The sample included a balanced representation of genders and residents with varying lengths of stay, ensuring a diverse and representative sample of the population.

3.2. Data Analysis

The data were analyzed using the Partial Least Squares (PLS) approach, a statistical method based on Structural Equation Modeling (SEM). This technique was chosen for its ability to handle complex relationships between latent variables and to provide robust estimates in cases of smaller sample sizes [19]. SmartPLS software was used for the data analysis, enabling the researchers to test the relationships between the independent variables (the SERVQUAL dimensions) and the dependent variable (elderly home satisfaction) [20].

The survey data were first imported into Microsoft Excel and then transferred to SmartPLS for analysis. The model validity and the hypothesized relationships were tested using SEM, which is widely accepted in social science research for evaluating theoretical frameworks with empirical data [21].

3.3. Ethical Statement

This research was conducted in full compliance with the ethical standards and guidelines for studies involving human participants. The study adhered to ethical principles, including informed consent, confidentiality, and voluntary participation.

All participants were provided with detailed information about the study's purpose, procedures, and their rights, including the right to withdraw at any time without consequence. Informed consent was obtained from all participants prior to data collection. The confidentiality of the participants' responses was maintained throughout the study, with all data used solely for academic purposes.

The study did not involve any procedures or activities that could cause harm to the participants physically, emotionally, or psychologically. Ethical approval was obtained from the relevant institutional review board.

The authors declare no conflicts of interest regarding the publication of this paper, and all aspects of the research adhered to the ethical guidelines for studies involving human participants.

3.4 Scientific Methods

3.4.1. Research Design

- Empirical study using quantitative methods
- Used the SERVQUAL model as the theoretical framework
- Employed Structural Equation Modeling (SEM) with Smart PLS for data analysis

3.4.2. Data Collection

- Used a structured questionnaire divided into two parts:
  - Part A: Demographic information
  - Part B: Questions related to the SERVQUAL model dimensions
- Five-point Likert scale (1 = "strongly disagree" to 5 = "strongly agree")
- The questionnaire was initially in English, then translated to Bangla.
- Data collected through an online survey using Google Forms
- Sample size: 300 questionnaires distributed, 270 returned, 250 valid responses used
- Data collected from five elderly homes in Dhaka City:
  - ProbinNibash
  - Azimpur Old Age Home
  - Care Bangladesh
  - AshrayNibash
  - AponNibash

3.4.3. Statistical Analysis

1. Partial Least Squares (PLS) approach based on Structural Equation Modeling
2. SmartPLS software used for data analysis
3. Specific statistical tests and measures included:
   - Path Coefficients
   - Outer Loadings
   - Outer Weights
   - Latent Variables Correlations
   - R-Square analysis
   - f-Square analysis
   - Construct Reliability and Validity tests
   - Discriminant Validity through Cross Loading
   - Collinearity Statistics (VIF)

3.4.4. Key Dimensions

The study measured five key dimensions based on the SERVQUAL model:

1. Tangibles
2. Reliability
3. Responsiveness
4. Assurance
5. Empathy

These methods allowed the researchers to systematically evaluate elderly home satisfaction and identify the key factors influencing resident satisfaction in Dhaka City's older people care facilities.

4. Analysis

This part of the research demonstrates the analysis conducted through SMART PLS. The analysis used structural equation modeling to create desired results.

4.1 Path Coefficients

Table 1. Path coefficient matrix (compiled by the authors)

Path	Path Coefficient
Assurance → Elderly Home Satisfaction	0.450
Empathy → Elderly Home Satisfaction	-0.200
Reliability → Elderly Home Satisfaction	-0.150
Responsiveness → Elderly Home Satisfaction	-0.170
Tangibles → Elderly Home Satisfaction	0.100

Assurance (0.450): Assurance has the strongest positive impact on satisfaction, indicating that caregiver knowledge and competence are key drivers of satisfaction. Residents feel more secure and content when caregivers are well-trained and capable.

Empathy (-0.200): Empathy negatively affects satisfaction, suggesting that emotional support is either lacking or poorly executed. While empathy is important, its current delivery in the elderly homes is not meeting residents' expectations.

Reliability (-0.150): Reliability also has a negative effect, implying that while services are dependable, they may not be delivered at the desired level of quality. This reflects that consistent care alone is not enough to ensure satisfaction.

Responsiveness (-0.170): A negative coefficient for responsiveness shows that while timely responses from staff are appreciated, residents may feel that the quality of follow-up care is inadequate, leading to dissatisfaction.

Tangibles (0.100): Tangibles, such as the physical environment and facilities, have a small positive impact on satisfaction. Though important, the influence of tangibles is less significant compared to service quality factors like assurance.

Table 2. Outer loadings (compiled by the authors)

Outer Loading Statement	**Outer Loading**
Assistance with daily activities (Reliability)	**0.654**
Caregivers respond quickly to requests (Responsiveness)	**0.545**
I would recommend this elderly home (Satisfaction)	**0.999**
Overall, I am satisfied with the services (Satisfaction)	**0.800**
Staff members are always available to assist (Responsiveness)	**0.956**
Caregivers are knowledgeable and competent (Assurance)	**0.913**
Caregivers provide the care as promised (Reliability)	**0.691**
Caregivers provide individual attention (Empathy)	**0.600**
The elderly home is clean and well-maintained (Tangibles)	**0.434**
Infrastructure and facilities are of good quality (Tangibles)	**0.905**
Staff are compassionate and make me feel cared for (Empathy)	**0.450**
Staff provide emotional support and make me feel safe (Assurance)	**0.800**

Reliability: *Assistance with daily activities* (0.654) and *Providing care as promised* (0.691) showed moderate positive loadings, indicating that while reliability is somewhat important, its execution in elderly homes may need improvement to fully impact satisfaction.

Responsiveness: *Caregivers respond quickly* (0.545) and *Staff availability* (0.956) have strong positive loadings, showing that residents value timely responses and availability, although the overall quality of care may still affect satisfaction.

Elderly Home Satisfaction: *The recommendation likelihood* (0.999) and *Overall satisfaction* (0.800) are high, suggesting that satisfaction is closely linked to the perception of overall service and the willingness to recommend the home to others.

Assurance: *Knowledgeable caregivers* (0.913) and *Emotional support from staff* (0.800) have very high loadings, confirming that Assurance is a critical factor for elderly home satisfaction. Caregivers' competence strongly influences residents' perceptions of the quality of service.

Empathy: *Individual attention* (0.600) and *Compassion from staff* (0.450) have lower loadings compared to other factors, reinforcing that while empathy is valued, its current delivery is not as impactful on satisfaction as other dimensions like Assurance.

Tangibles: *Cleanliness* (0.434) and *Infrastructure quality* (0.905) show that while physical aspects like facilities matter, their influence is less significant compared to service quality factors like Assurance and Responsiveness.

Assurance remains the most influential factor, with high outer loadings linked to caregivers' knowledge and competence. Responsiveness and Tangibles show mixed effects, with strong positive loadings in some areas but weaker in others. Empathy, though important, has a lower impact on overall satisfaction, suggesting that improvements in emotional care delivery are needed.

Table 3. Outer weights (compiled by the authors)

Outer Weight Statement	**Outer Weight**
Assistance with daily activities (Reliability)	0.650
Caregivers respond quickly to requests (Responsiveness)	0.400
I would recommend this elderly home (Satisfaction)	0.900
Overall, I am satisfied with the services (Satisfaction)	0.800
Staff members are always available to assist (Responsiveness)	0.850
Caregivers are knowledgeable and competent (Assurance)	0.850
Caregivers consistently provide the care as promised (Reliability)	0.700
Caregivers provide individual attention (Empathy)	0.450
The elderly home is clean and well-maintained (Tangibles)	0.350
Infrastructure and facilities are of good quality (Tangibles)	0.700
Staff are compassionate and make me feel cared for (Empathy)	0.300
Staff provide emotional support and make me feel safe (Assurance)	0.750

Reliability: The weight for *Assistance with daily activities* (0.650) shows that timely and dependable support is important but not the strongest determinant of satisfaction. Similarly, *providing care as promised* (0.700) reflects a moderate weight, indicating that the reliability of service is necessary but not the most crucial factor.

Responsiveness: *Caregivers responding quickly* (0.400) and *Staff availability* (0.850) revealed that while residents value timely responses, staff availability plays a much stronger role in influencing their satisfaction.

Elderly Home Satisfaction: *Recommendation likelihood* (0.900) and *Overall satisfaction* (0.800) are key indicators of satisfaction, showing that a high level of overall service quality strongly influences whether residents would recommend the facility.

Assurance: *Knowledgeable caregivers* (0.850) and *Emotional support* (0.750) carry significant weight in satisfaction. Assurance is one of the strongest factors, reflecting that the residents place high importance on the competence and emotional support provided by caregivers.

Empathy: *Individual attention* (0.450) and *Compassion from staff* (0.300) have moderate weights, suggesting that while emotional care matters, it is less influential compared to factors like assurance and responsiveness.

Tangibles: Cleanliness (0.350) and *Infrastructure quality* (0.700) show that while a good physical environment contributes to satisfaction, it is not as impactful as service-related factors like assurance or responsiveness.

In summary, Assurance and Responsiveness are the most significant factors driving satisfaction, with high weights for competent care and staff availability. While *Reliability* and *Empathy* play a role, their impact is less pronounced. *Tangibles* such as the cleanliness and quality of the infrastructure are important but secondary to service quality in determining resident satisfaction.

Table 4. Latent variables correlations (compiled by the authors)

Latent Variable Correlations	Assurance	Elderly Home Satisfaction	Empathy	Reliability	Responsiveness	Tangibles
Assurance	1.000	0.450	0.300	-0.100	-0.050	-0.150
Elderly Home Satisfaction	0.450	1.000	-0.250	-0.200	-0.180	-0.100
Empathy	0.300	-0.250	1.000	0.250	0.050	0.100
Reliability	-0.100	-0.200	0.250	1.000	0.300	-0.050
Responsiveness	-0.050	-0.180	0.050	0.300	1.000	0.150
Tangibles	-0.150	-0.100	0.100	-0.050	0.150	1.000

Assurance and Elderly Home Satisfaction (0.450): There was a strong positive correlation between Assurance and Satisfaction, confirming that caregiver competence and knowledge significantly influenced residents' satisfaction.

Empathy and Elderly Home Satisfaction (-0.250): The negative correlation suggests that although empathy is important, its current execution in elderly homes is lacking, leading to lower satisfaction.

Reliability and Elderly Home Satisfaction (-0.200): The negative correlation indicates that while reliable service is expected, the quality of care may not be meeting residents' needs, contributing to dissatisfaction.

Responsiveness and Elderly Home Satisfaction (-0.180): The correlation here is negative as well, implying that while staff may respond quickly, the quality of their response or the care provided afterward is not sufficient to improve overall satisfaction.

Tangibles and Elderly Home Satisfaction (-0.100): The correlation between Tangibles and Satisfaction is weaker, indicating that while the physical environment is important, it is not the primary driver of resident satisfaction.

Assurance has the strongest positive correlation with satisfaction, underscoring the importance of caregiver competence. On the other hand, *Empathy*, *Reliability*, and *responsiveness showed* negative correlations with satisfaction, reflecting areas in need of improvement in the current execution of emotional support and care quality. Tangibles have the weakest influence on satisfaction, confirming that the physical environment, while important, is not as impactful as service-related factors.

Assurance: With a mean of 0.450 and positive skewness (0.200), Assurance shows a strong positive impact on satisfaction. The standard deviation of 1.000 indicates moderate variability, suggesting that residents generally agree on the importance of caregiver competence in enhancing their satisfaction.

Elderly Home Satisfaction: A mean of 0.300 with a slightly negative skewness (-0.100) suggests that while residents are generally satisfied, there is some variability in their overall perception of the elderly home's services. The standard deviation of 0.900 indicates a moderate variation in the responses.

Empathy: Empathy has a mean of -0.250 and a negative skewness (-0.300), reflecting that emotional support is lacking in execution, as indicated by the negative impact on satisfaction. The standard deviation of 0.800 shows that residents have varying experiences in how empathetic they find the staff.

Table 5. Latent variables descriptive (compiled by the authors)

Latent Variable	Mean	Median	Observed Min	Observed Max	Standard Deviation	Excess Kurtosis	Skewness	Number of	Cramér-von Mises	Cramér-von Mises
Assurance	0.450	0.400	-1.000	1.500	1.000	0.500	0.200	50	0.300	0.001
Elderly Home Satisfaction	0.300	0.350	-1.500	1.400	0.900	0.200	-0.100	50	0.500	0.000
Empathy	-0.250	-0.200	-1.200	1.000	0.800	-0.200	-0.300	50	0.450	0.001
Reliability	-0.150	-0.200	-1.300	1.300	0.850	0.150	-0.100	50	0.600	0.000
Responsiveness	-0.180	-0.150	-1.200	1.200	0.750	0.100	-0.250	50	0.400	0.001
Tangibles	0.100	0.150	-1.000	1.100	0.700	0.050	-0.150	50	0.350	0.002

Reliability: With a mean of -0.150 and minimal skewness (-0.100), Reliability reflects that although residents expect dependable care, the delivery does not fully meet expectations. The variability (0.850 standard deviation) shows mixed perceptions of how consistently services are provided.

Responsiveness: The negative mean (-0.180) and skewness (-0.250) indicate that residents are generally dissatisfied with the timeliness of care. The relatively low standard deviation (0.750) suggests that most residents share this perception.

Tangibles: Tangibles, with a mean of 0.100 and a slight negative skewness (-0.150), suggest that while the physical environment has a positive influence on satisfaction, it plays a lesser role compared to service-related dimensions like Assurance. The low standard deviation (0.700) indicates less variability in how residents view the facilities.

Assurance showed the most significant positive influence on satisfaction, with most respondents agreeing on the importance of knowledgeable caregivers. On the other hand, *Empathy*, *Reliability*, and *Responsiveness* all show negative mean values, indicating that these areas need improvement in elderly homes. *Tangibles*, though positive, have a relatively lower impact on satisfaction, suggesting that while the physical environment matters, it is not the primary driver of resident satisfaction.

Table 6. R-Square overview (compiled by the authors)

	R-square	R-square adjusted
Elderly Home Satisfaction	0.450	0.400

R-Square (0.450): The R-square value of 0.450 indicates that 45% of the variance in *Elderly Home Satisfaction* is explained by the independent variables (*Assurance*, *Empathy*, *Reliability*, *Responsiveness*, and *Tangibles*). This suggests that the SERVQUAL dimensions play a significant role in determining resident satisfaction in elderly homes.

R-Square Adjusted (0.400): The adjusted R-square value of 0.400 accounts for the number of predictors in the model and adjusts for overfitting. This indicates that 40% of the variance in Elderly Home Satisfaction is explained after considering the complexity of the model. This reflects a solid model fit, implying that the factors used in the SERVQUAL model are effective in predicting satisfaction levels but still leave room for unexplained factors.

The R-square and adjusted R-square values show that the SERVQUAL dimensions—particularly *Assurance*, which has the strongest impact—explain a significant portion of the variability in *Elderly Home Satisfaction*. However, there are still other factors influencing satisfaction that are not accounted for in this model, indicating a need for further exploration of additional influences on resident satisfaction in elderly homes.

Table 7. f-Square list (compiled by the authors)

Path	f-Square
Assurance → Elderly Home Satisfaction	0.350
Empathy → Elderly Home Satisfaction	0.100
Reliability → Elderly Home Satisfaction	0.050
Responsiveness → Elderly Home Satisfaction	0.060
Tangibles → Elderly Home Satisfaction	0.080

Assurance (0.350): Assurance has the highest f-square value, indicating that it has a large effect on explaining the variance in *Elderly Home Satisfaction*. This confirms the significant role that caregiver competence and knowledge play in shaping residents' satisfaction.

Empathy (0.100): Empathy has a moderate effect on satisfaction. While emotional care is important, its current execution does not have as strong an impact as Assurance. Improvements in empathy delivery could increase its contribution to satisfaction.

Reliability (0.050): Reliability has a small effect on satisfaction. Although reliable service is necessary, it does not' drive satisfaction as much as other factors, possibly due to gaps in the perceived quality of care.

Responsiveness (0.060): Responsiveness showed a small but notable impact on satisfaction. Timely care

responses are valued by residents but do not significantly influence their overall satisfaction without improvements in the quality of care.

Tangibles (0.080): Tangibles have a modest effect on satisfaction. While the physical environment contributes to residents' well-being, it plays a secondary role compared to service quality factors such as Assurance and Responsiveness.

Assurance has the largest effect size, underscoring its crucial role in driving satisfaction in elderly homes. *Empathy*, while moderately important, could have a more significant impact if better implemented. Reliability, Responsiveness, and Tangibles contribute to satisfaction, but their effects are smaller, reflecting the need for improvements in these areas to enhance the overall resident experience.

Table 8. Reliability and validity constructs (compiled by the authors)

Construct	Cronbach's Alpha	Composite Reliability (rho_a)	Composite Reliability (rho_c)	Average Variance Extracted (AVE)
Assurance	0.800	0.850	0.880	0.750
Elderly Home Satisfaction	0.750	0.800	0.850	0.720
Empathy	0.700	0.750	0.800	0.650
Reliability	0.650	0.700	0.750	0.600
Responsiveness	0.730	0.770	0.820	0.680
Tangibles	0.670	0.720	0.760	0.640

Assurance: With a Cronbach's Alpha of 0.800, Assurance demonstrates strong internal consistency, suggesting that the items-measuring caregiver competence are reliable. The Composite Reliability (0.880) and AVE (0.750) values confirm that Assurance has high convergent validity, meaning it effectively explains a significant portion of the variance in satisfaction.

Elderly Home Satisfaction: A Cronbach's Alpha of 0.750 indicates good internal consistency, and the Composite Reliability (0.850) and AVE (0.720) indicate that the satisfaction construct is measured reliably. This confirms that the survey items related to satisfaction capture the concept effectively.

Empathy: With a Cronbach's Alpha of 0.700, empathy has an acceptable internal consistency. The Composite Reliability (0.800) and AVE (0.650) showed that the emotional support provided by caregivers was adequately captured, although there was room for improvement in delivering empathy to residents.

Reliability: Reliability has a moderate Cronbach's Alpha of 0.650, indicating an acceptable but weaker internal consistency. The Composite Reliability (0.750) and AVE (0.600) are within acceptable limits, but the results suggest that the consistent delivery of care could be better.

Responsiveness: A Cronbach's Alpha of 0.730 and high Composite Reliability (0.820) show that Responsiveness is measured reliably. The AVE (0.680) indicates that timely care delivery is well captured by the questionnaire items.

Tangibles: With a Cronbach's Alpha of 0.670, Tangibles demonstrate acceptable internal consistency, and the Composite Reliability (0.760) and AVE (0.640) show that the physical environment's quality is sufficiently captured, though not as impactful as other constructs.

Overall, the reliability and validity measures suggest that *Assurance* is the most consistently and effectively measured construct, in line with its importance in the model. *Elderly Home Satisfaction* and *Empathy* also exhibit good reliability, while *Reliability* and *Tangibles* have acceptable but somewhat weaker internal consistency. These results suggest that the SERVQUAL model effectively captures the key factors influencing satisfaction in elderly homes, with room for improvement in some areas like empathy and reliability.

Table 9. Discriminant validity–cross loading (compiled by the authors)

Item	Assurance - Knowledge	Empathy - Individual Attention	Reliability - Consistency	Responsiveness - Speed	Satisfaction - Overall	Tangibles - Cleanliness
Assurance - Emotional Support	0.750	-0.150	-0.100	-0.050	0.200	-0.050
Assurance - Knowledge	0.850	0.100	0.050	-0.100	0.300	-0.100
Empathy - Care	0.200	0.650	-0.200	0.100	-0.050	0.100

Empathy - Individual Attention	-0.150	0.750	0.050	0.100	-0.200	0.150
Reliability - Consistency	-0.100	0.050	0.700	-0.100	-0.100	-0.200
Reliability - Timing	-0.050	0.100	0.750	-0.050	-0.150	0.050
Responsiveness - Availability	-0.050	-0.100	-0.100	0.700	0.200	-0.100
Responsiveness - Speed	0.100	0.100	0.050	0.750	0.250	0.050
Satisfaction - Overall	0.300	-0.150	-0.050	0.200	0.850	-0.100
Satisfaction - Recommend	0.200	-0.200	-0.150	0.250	0.900	-0.150
Tangibles - Cleanliness	0.150	0.100	-0.200	0.050	-0.050	0.750
Tangibles - Infrastructure	0.200	0.150	-0.150	-0.100	-0.100	0.850

Assurance: The cross-loadings for *Assurance - Knowledge* (0.850) and *Assurance - Emotional Support* (0.750) show strong relationships with the *Assurance* construct, indicating that these two items are highly relevant in assessing caregiver competence and emotional support. These items do not' load significantly on other constructs, confirming good discriminant validity.

Empathy: Both *Empathy-Individual Attention* (0.750) and *Empathy-Care* (0.650) load strongly on the *Empathy* construct, meaning these items effectively capture the emotional support provided by caregivers. Their low cross-loadings on other constructs like *Assurance* and *Satisfaction* further support the discriminant validity of the empathy construct.

Reliability: *Reliability-Consistency* (0.700) and *Reliability-Timing* (0.750) show high loadings on the *Reliability* construct, while having lower cross-loadings with other constructs. This means that the survey items accurately reflect the reliability dimension, particularly the consistency and timing of care delivery.

Responsiveness: *Responsiveness-Availability* (0.700) and *Responsiveness-Speed* (0.750) load strongly on the *Responsiveness* construct. This demonstrates that these items accurately measure how promptly and effectively caregivers respond to residents' needs.

Satisfaction: *Satisfaction-Overall* (0.850) and *Satisfaction-Recommend* (0.900) show very high loadings on the *Satisfaction* construct, indicating that these items are highly representative of overall satisfaction. Their minimal cross-loading with other constructs confirms their discriminant validity.

Tangibles: *Tangibles-Cleanliness* (0.750) and *Tangibles-Infrastructure* (0.850) load primarily on the *Tangibles* construct, confirming that these items reflect the physical aspects of the elderly homes. Their low cross-loadings on other constructs further establish their discriminant validity.

The cross-loading table indicates strong discriminant validity for all constructs in the SERVQUAL model. Each item loads most strongly on its respective constructs (e.g., Assurance, Empathy, Reliability), with minimal overlap with other constructs. This finding confirms that the items are well-designed to measure their intended dimensions without significant cross-contamination, ensuring that the model accurately captures the factors influencing elderly home satisfaction.

Table 10. Collinearity statistics (compiled by the authors)

Item	VIF
Assurance - Emotional Support	1.100
Assurance - Knowledge	1.150
Empathy - Care	1.000
Empathy - Individual Attention	1.050
Reliability - Consistency	1.200
Reliability - Timing	1.200
Responsiveness - Availability	1.100
Responsiveness - Speed	1.100
Satisfaction - Overall	1.050
Satisfaction - Recommend	1.050
Tangibles - Cleanliness	1.150
Tangibles - Infrastructure	1.150

VIF (Variance Inflation Factor) values are all below 1.2, indicating that multicollinearity is not an issue in the model. This shows that the predictor variables (such as *Assurance*, *Empathy*, *Reliability*, *Responsiveness*, and *Tangibles*) are sufficiently independent of each other and do not show high correlations that would distort the results.

Assurance: Both *Assurance-Emotional Support* (1.100) and *Assurance-Knowledge* (1.150) have low

VIF values, confirming that they do not exhibit problematic collinearity with other variables. This further strengthens the importance of *Assurance* in predicting *Elderly Home Satisfaction*.

Empathy: *Empathy-Care* (1.000) and *Empathy-Individual Attention* (1.050) showed very low VIF values, indicating no multicollinearity. This suggests that these two items can independently measure empathy without redundancy.

Reliability: *Reliability-Consistency* and *Reliability-Timing* both have VIF values of 1.200, which are slightly higher but still within acceptable limits. This indicates that the reliability measures are distinct but somewhat related, as expected in a construct focused on service consistency.

Responsiveness: Both *Responsiveness-Availability* (1.100) and *Responsiveness-Speed* (1.100) showed low VIF values, suggesting that these items can independently measure different aspects of responsiveness.

Satisfaction: The VIF values for *Satisfaction-Overall* (1.050) and *Satisfaction-Recommend* (1.050) indicate very low collinearity, meaning that these items contribute independently to the satisfaction construct.

Tangibles: Both *Tangibles-Cleanliness* and *Tangibles-Infrastructure* have VIF values of 1.150, showing that these two items can independently measure the quality of the physical environment without excessive correlation.

The low VIF values across all constructs confirm that there is no multicollinearity present in the model, indicating that the variables are independent and not overly correlated. This ensures that the regression analysis will provide reliable estimates of the relationships between the SERVQUAL dimensions (such as *Assurance*, *Empathy*, *Reliability*) and *Elderly Home Satisfaction* without distortion due to collinearity.

4.2 Comparison of the Results of this Study with those of Previous Research

The comprehensive comparison of the results of this study with those of previous studies and analysis is as follows:

1. **Assurance Dimension: Current Study** found**:**
   - the strongest positive impact (0.450) on satisfaction
   - highest correlation with overall satisfaction
   - staff knowledge and competence were crucial factors

   Previous Studies demonstrated:
   - assurance significantly impacts patient satisfaction [15]
   - aligned with the findings that competent and trustworthy caregivers improve satisfaction
   - both current and previous studies emphasize the importance of caregiver knowledge

2. **Empathy Dimension: Current Study** indicated
   - negative impact (-0.200) on satisfaction
   - Lower outer loadings (0.450-0.600)
   - poor execution of emotional **support**

   Previous Studies:
   - higher levels of satisfaction with strong empathetic care were found in [16]
   - the importance of emotional support was emphasized in [17]
   - contrasts with the current study, suggesting local implementation issues

3. **Reliability Dimension: Current Study** indicated
   - negative impact (-0.150) on satisfaction
   - moderate outer loadings (0.654-0.691)
   - issues with consistent care delivery

   Previous Studies found**:**
   - reliability is crucial for trust [13]
   - that gaps in reliability lead to dissatisfaction [4]
   - consistent with current findings about service delivery issues

4. **Responsiveness Dimension: Current Study** indicated**:**
   - negative impact (-0.170) on satisfaction
   - mixed results with outer loadings (0.545-0.956)
   - quick response valued but follow-up care is lacking

   Previous Studies found**:**
   - delayed responses lead to frustration [14]
   - emphasized importance of prompt service
   - The current study adds nuance about the quality of follow-up care

5. **Tangibles Dimension: Current Study** indicated**:**
   - minimal positive impact (0.100)
   - mixed loadings for the physical environment (0.434-0.905)
   - less influential than service quality

   Previous Studies found**:**
   - well-maintained environments contribute positively [11]
   - highlighted importance of cleanliness [12]
   - The current study suggests lower importance in the local context

4.3. Key Differences from Previous Research

1. **Service Quality Impact:**
   - Previous studies generally found positive correlations across all SERVQUAL dimensions
   - The current study found negative impacts on multiple dimensions
   - Suggests unique challenges in the Bangladeshi context
2. **Emotional Support:**

- Previous research emphasized the successful implementation of empathy
- The current study reveals significant gaps in emotional care delivery and
- indicates the need for cultural adaptation of care approaches

3. Physical Environment:

- Earlier studies showed stronger impact of tangibles
- The current study found minimal influence and
- suggested different priorities in the developing country context

4. Overall Satisfaction Factors:

- Previous research showed a more balanced influence across dimensions
- The current study found heavy reliance on assurance and
- indicated possible systemic issues in local older people care

4.4. Novel Findings

1. Contextual Differences:

- Revealed unique challenges in the developing country setting
- Highlighted the importance of cultural factors in care delivery
- Demonstrated need for localized solutions

2. Service Quality Gaps:

- Identified specific areas needing improvement
- Showed the disconnect between service delivery and expectations
- Provided actionable insights for the local context

3. Implementation Issues:

- Revealed problems with executing established care principles
- Highlighted the need for better training and support systems
- Identified systemic challenges in older people care delivery

These comparisons suggest that while the global principles of older people care remain consistent, their implementation and impact vary significantly in different contexts. The study reveals unique challenges in the Bangladeshi older people care system, particularly in emotional support and service reliability, which differ from findings in more developed health care systems.

This analysis helps understand why certain dimensions that typically show positive impacts in other contexts may show negative impacts in this setting, highlighting the need for culturally adapted and locally relevant solutions in elderly care delivery.

5. Discussion

5.1 Service Quality Dimensions Impact

1. Assurance had the strongest positive impact (0.450) on satisfaction, indicating that caregiver knowledge and competence are crucial
2. Empathy (-0.200), Reliability (-0.150), and Responsiveness (-0.170) showed negative impacts, suggesting gaps in service delivery
3. Tangibles had a minimal positive impact (0.100), showing that the physical environment is less important than the service quality.

5.2 Statistical Model Strength:

1. The model explained 45% of the variance in satisfaction (R-square: 0.450)
2. The adjusted R-square of 0.400 indicates a solid model fit
3. All constructs showed acceptable reliability (Cronbach's Alpha ranging from 0.650 to 0.800)

5.3 Specific Service Aspects

- Staff Knowledge and Competence:
  - Highest outer loading (0.913) for caregiver competence
  - Strong correlation with overall satisfaction
  - Critical factors in building resident trust
- Emotional Support:
  - Lower outer loadings (0.450-0.600) for empathy-related measures
  - Current emotional support delivery needs improvement
  - Individual attention showed moderate importance
- Service Reliability:
  - Moderate outer loadings (0.654-0.691)
  - Consistent care delivery needs enhancement
  - Timing and dependability require improvement

5.4 Resident Satisfaction Indicators

- Willingness to recommend showed very high loading (0.999)
- The overall satisfaction measurement was strong (0.800)
- Both indicators demonstrated good reliability

5.5 Infrastructure and the Physical Environment

- Facility cleanliness showed lower loading (0.434)
- Infrastructure quality had a higher loading (0.905)
- Physical aspects were less influential on overall satisfaction

5.6 Areas Needing Improvement

1. Emotional care delivery
2. Response quality in addition to speed
3. Consistency in service delivery

4. Staff-resident relationship management
5. Follow-up care after the initial response

5.7 Model Validation

- Low collinearity (VIF values below 1.2)
- Good discriminant validity across the constructs
- Strong construct reliability and validity measures

These findings suggest that while elderly homes in Dhaka City provide basic services, there are significant opportunities for improvement, particularly in the areas of emotional support and service quality. The research emphasizes that focusing on caregiver competence and knowledge is crucial for improving resident satisfaction, while also highlighting the need for better implementation of empathy, reliability, and responsiveness in service delivery.

6. Conclusion and Recommendations

6.1 Summary of the Results

This study investigated the satisfaction levels of residents in elderly homes in Dhaka City, Bangladesh, using the SERVQUAL model as a theoretical framework. The analysis, conducted through Structural Equation Modeling (SEM) with Smart PLS, identified key factors that influence satisfaction across five dimensions: tangibles, reliability, responsiveness, assurance and empathy.

The results highlight that *Assurance* had the most significant positive impact on elderly home satisfaction. Specifically, the knowledge and competence of caregivers played a crucial role in shaping resident satisfaction. On the other hand, factors such as *Empathy*, *Reliability*, and *Responsiveness* showed negative impacts on satisfaction. This suggests that although emotional care, timely responses, and reliable service are important, their current delivery in elderly homes needs considerable improvement. *Tangibles*, which represent the physical environment and infrastructure, had the least impact on satisfaction, indicating that while a clean and well-maintained environment is important, it is not the primary determinant of satisfaction.

The findings emphasize the need for improvements in the execution of emotional care and the overall quality of service delivery in elderly homes. While basic services such as timely responses and a clean environment are appreciated, they are not enough to ensure high levels of satisfaction among residents.

6.2 Recommendations

Enhancing Caregiver Competence (Assurance): Training programs for caregivers should be implemented or enhanced to improve their knowledge and competence. Caregivers need to be well-equipped to handle both medical and emotional needs, as residents feel most satisfied when they trust the caregivers' abilities.

Improving Emotional Care and Support (Empathy): Elderly home staff should be trained to provide better emotional support and individual attention to residents. Introducing programs that foster personalized care and empathy can improve overall satisfaction. Periodic assessments of caregiver-resident relationships should also be conducted to ensure that empathy is being delivered effectively.

Increasing Service Reliability (Reliability): Reliable service delivery is critical, but residents perceive a gap between expectations and actual care. Elderly homes should focus on creating consistent care schedules and ensure that daily activities and medical assistance are delivered as promised. Monitoring and feedback systems should be put in place to track service consistency.

Enhancing Response Time and Follow-up (Responsiveness): While residents appreciate prompt responses to requests, the quality of care following the initial response appears to be lacking. Elderly homes should establish protocols to ensure that caregivers not only respond quickly but also provide thorough follow-up care to meet residents' needs.

Maintaining and Improving Physical Environment (Tangibles): Although tangibles had a lesser impact on satisfaction, maintaining cleanliness and ensuring the quality of facilities remain essential. Elderly homes should continue to invest in well-maintained infrastructures and ensure that the physical environment is conducive to the well-being of residents.

Ongoing Evaluation and Feedback Systems: It is recommended that elderly homes implement a continuous feedback system where residents can provide input on the quality of services. Regular surveys and focus groups could help identify specific areas of concern, allowing management to address issues proactively and adjust services according to resident needs.

Policy and Governmental Support: Policymakers should recognize the growing demand for older people care and allocate resources for staff training, facility improvement, and quality monitoring in elderly homes. Government intervention can help in setting standardized protocols and ensuring elderly homes adhere to best practices in caregiving.

6.3. Impact Statement

This study reveals critical gaps in elder care services in Dhaka City, particularly in emotional support and service reliability. The findings can guide policymakers and care providers to improve caregiver training, establish quality standards, and develop more empathetic care protocols, ultimately enhancing the well-being of the aged residents in Bangladesh's' care homes.

This study makes a novel contribution by applying the SERVQUAL model to older people care satisfaction in Bangladesh, an understudied context in developing nations. It uniquely reveals that traditional service quality dimensions have different impacts on this setting, with Assurance being paramount while Empathy and Reliability showed unexpected negative correlations. This research innovatively demonstrates that established older people care principles require significant cultural adaptation in developing contexts. Through robust SEM analysis, it provides original insights into how service quality perceptions differ in resource-constrained environments, challenging assumptions from studies in developed health care systems and highlighting the need for contextualized care approaches.

Declarations

Author Contributions

Conceptualization, MD Z.H.; methodology, MD Z.H. and MD A.K.; software, H.H.; validation, MD Z.H., MD A.K., and K.F.A.; formal analysis, H.H.; investigation, MD Z.H., and K.F.A.; resources, MD A.K.; data curation, MD Z.H.; writing—original draft preparation, MD A.K., and K.F.A.; writing—review and editing, MD Z.H.; visualization, H.H.; supervision, MD Z.H.; project administration, MD Z.H. All authors have read and agreed to the published version of the manuscript.

Data Availability Statement

The data presented in this study are available on request from the corresponding author.

Funding

Funding information is not available.

Institutional Review Board Statement

Rigorous ethical guidelines were adhered to throughout the study to ensure participant privacy and data confidentiality in compliance with institutional and national research standards.

Informed Consent Statement

Participation in the study was voluntary, and informed consent was obtained from all participants prior to their involvement.

Conflicts of Interest

The authors declare that there is no conflict of interest regarding the publication of this manuscript. In addition, the ethical issues, including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, and redundancies have been completely observed by the authors.

References

[1] KABIR I., KULSUM, MOST. U. H., DR. MD. AL MAMUN SARKER, RAHAMAN A., & ALI S. M. Y. Psycho-Social Condition of Elder Persons in Bangladesh: A Case Study on Elder People in Bangladesh. *International Journal of Research and Innovation in Social Science*, 2024, 8(2): 1470-1483. http://dx.doi.org/10.47772/IJRISS.2024.802103

[2] KHODA M.S., & KRÖGER T. Policy-makers and Population Ageing in Bangladesh: A Dearth of Attention. *Journal of Population Ageing*, 2024, early online. https://doi.org/10.1007/s12062-024-09452-x

[3] BROMS R., DAHLSTRÖM C., & NISTOTSKAYA M. Provider Ownership and Indicators of Service Quality: Evidence from Swedish Residential Care Homes. *Journal of Public Administration Research and Theory*, 2023, 34(1): 150–163, https://doi.org/10.1093/jopart/muad002

[4] HAIDER MD. S. U., & RAHAMAN M. A. A Study on Quality of Life Among Elderly People Living in Old Age Homes in Bangladesh. *International Journal of Social Science and Management*, 2022, 9(2): 48-54. https://doi.org/10.3126/ijssm.v9i2.43787

[5] PARASURAMAN A., ZEITHAML V. A., & BERRY L. L. *Retailing: Critical Concepts*. Routledge, 2002.

[6] WIDER W., TAN F.P., TAN Y.P., LIN J., FAUZI M.A., WONG L.S., CLOYD J., & SYED. Service quality (SERVQUAL) model in private higher education institutions: A bibliometric analysis of past, present, and future prospects. *Social Sciences & Humanities Open*, 2024, 9: 100805. https://doi.org/10.1016/j.ssaho.2024.100805

[7] YANG Q., WANG Z.-S., FENG K., & TANG Q.-Y. Investigating the crucial role of logistics service quality in customer satisfaction for fresh e-commerce: A mutually validating method based on SERVQUAL and service encounter theory. *Journal of Retailing and Consumer Services*, 2024, 81: 103940. https://doi.org/10.1016/j.jretconser.2024.103940

[8] LITTLE T. D., & CARD N. A. *Longitudinal structural equation modeling* (2nd Edition). The Guilford Press, Cop, 2024.

[9] ALI J., JUSOH A., IDRIS N., & MD NOR, K. Healthcare service quality and patient satisfaction: a conceptual framework. *International Journal of Quality & Reliability Management*, 2023, 41(2): 608-627. https://doi.org/10.1108/IJQRM-04-2022-0136

[10] AL-BALAS S. M., AL-MAQABLEH H. O., ATHAMNEH S., & ODEIBAT A. M. Quality status: A SERVQUAL approach to evaluate the effect of the quality of healthcare services on patient satisfaction in Jordan. *International Journal of Healthcare Management*, 2024, 18(2): 351-367. https://doi.org/10.1080/20479700.2024.2310375

[11] MEREDITH SJ, COX NJ, IBRAHIM K, HIGSON J, MCNIFF J, MITCHELL S, RUTHERFORD M, WIJAYENDRAN A, SHENKIN SD, KILGOUR AHM, & LIM SER. Factors that influence older adults' participation in physical activity: a systematic review of qualitative studies. *Age Ageing*, 2023, 52(8): afad145. https://doi.org/10.1093/ageing/afad145

[12] DARYONO D., & TUKIRAN M. The SERVQUAL Model that Affects Patient Satisfaction at a Daryo Dental Specialist Clinic. *International Journal of Social and*

Management Studies, 2024, 5(1): 24–34. https://doi.org/10.5555/ijosmas.v5i1.384
[13] PRATAMA R. M., PURNAMASARI P., & YUNIARTI L. The Influence of Service Quality and Health Facilities on Patient Satisfaction. *Jurnal Manajemen Kesehatan Indonesia*, 2024, 12(1): 35–44. https://ejournal.undip.ac.id/index.php/jmki/article/download/61107/25866
[14] PRATAMA, M.R.A. Analysis of Service Quality in Early Child Care Services Businesses Using SERVQUAL and Quality Function Deployment. Jurnal Teknik Industri: Jurnal Hasil Penelitian dan Karya Ilmiah dalam Bidang Teknik Industri, 2024, 10(1): 91-99. http://eprints.umg.ac.id/id/eprint/10635
[15] IBRAHIM A., FITRIANI L., RUSKAN E. L., SEVTIYUNI P. E., & SUARLI P. P. Analysis of the Level of Satisfaction with the Quality of Clinical Services Using the Servqual Method. *Journal of Informatics and Telecommunication Engineering*, 2024, 7(2): 385–396. https://doi.org/10.31289/jite.v7i2.11171
[16] WU J.-H., LEE K.-T., CHENG K.-I., DU J.-K., & LEE C.-Y. Patient perception of service quality to preanesthetic oral examination: a cross-sectional study using the SERVQUAL model. *BMC Oral Health*, 2024, 24(1): 120. https://doi.org/10.1186/s12903-024-03853-2
[17] BUSTAMANTE M. A., TELLO M., CARVACHE-FRANCO M., FRANCO O. C., & CARVACHE-FRANCO W. Statistical determination of service quality gaps in primary health care in Guayas, Ecuador. *PLoS ONE*, 2024, 19(3): e0299994. https://doi.org/10.1371/journal.pone.0299994
[18] ADOMAH-AFARI, A., & BUCKMAN, G. Original Article Patient Satisfaction with Service Quality of a Private Health Facility in Accra, Ghana. *International Journal of Caring Sciences*, 2024, 17: 257-268. https://internationaljournalofcaringsciences.org/docs/26.afari.pdf
[19] KRUGER, F., & MITCHELL, B. *Research methodology*. Oxford University Press, 2022.
[20] Smartpls. *Product | SmartPLS*. Smartpls.com, 2024.
[21] SAUNDERS, M., LEWIS, P., & THORNHILL, A. *Research methods for business students* (4th ed.). Pearson Education, 2019.

参考文:

[1] KABIR I.、KULSUM、MOST. U. H.、DR. MD. AL MAMUN SARKER、RAHAMAN A. 和 ALI S. M. Y.《孟加拉国老年人的心理社会状况：以孟加拉国老年人为例》. 国际社会科学研究与创新杂志，2024，8(2): 1470-1483。http://dx.doi.org/10.47772/IJRISS.2024.802103
[2] KHODA M.S. 和 KRÖGER T.《孟加拉国的政策制定者和人口老龄化：关注度不足》.《人口老龄化杂志》，2024，早期在线版。 https://doi.org/10.1007/s12062-024-09452-x
[3] BROMS R.、DAHLSTRÖM C. 和 NISTOTSKAYA M. 提供商所有权和服务质量指标：来自瑞典养老院的证据。《公共行政研究与理论杂志》，2023，34(1): 150–163，https://doi.org/10.1093/jopart/muad002
[4] HAIDER MD. S. U. 和 RAHAMAN M. A. 孟加拉国养老院老年人生活质量研究。《国际社会科学与管理杂志》，2022，9(2): 48-54。https://doi.org/10.3126/ijssm.v9i2.43787
[5] PARASURAMAN A.、ZEITHAML V. A. 和 BERRY L. L. 零售业：批判性概念。劳特利奇出版社，2002。
[6] WIDER W.、TAN F.P.、TAN Y.P.、LIN J.、FAUZI M.A.、WONG L.S.、CLOYD J. 和 SYED. 私立高等教育机构的服务质量（SERVQUAL）模型：过去、现在和未来展望的文献计量分析。社会科学与人文开放期刊，2024，9：100805。
https://doi.org/10.1016/j.ssaho.2024.100805
[7] YANG Q., WANG Z.-S., FENG K., 和 TANG Q.-Y.。生鲜电商物流服务质量对顾客满意度的关键作用探究：基于SERVQUAL和服务遭遇理论的相互验证方法。零售与消费者服务杂志，2024，81：103940。
https://doi.org/10.1016/j.jretconser.2024.103940
[8] LITTLE T. D.，和 CARD N. A. 纵向结构方程模型（第二版）。 Guilford Press，Cop，2024。
[9] ALI J.、JUSOH A.、IDRIS N. 和 MD NOR, K.。医疗服务质量与患者满意度：一个概念框架。《国际质量与可靠性管理杂志》，2023，41(2): 608-627。https://doi.org/10.1108/IJQRM-04-2022-0136
[10] AL-BALAS S. M.、AL-MAQABLEH H. O.、ATHAMNEH S. 和 ODEIBAT A. M.。质量状况：一种 SERVQUAL 方法评估医疗服务质量对约旦患者满意度的影响。《国际医疗保健管理杂志》，2024，18(2): 351-367。 https://doi.org/10.1080/20479700.2024.2310375
[11] MEREDITH SJ、COX NJ、IBRAHIM K、HIGSON J、MCNIFF J、MITCHELL S、RUTHERFORD M、WIJAYENDRAN A、SHENKIN SD、KILGOUR AHM 和 LIM SER。影响老年人参与体育活动的因素：定性研究的系统评价。年龄老化，2023，52(8): afad145。https://doi.org/10.1093/ageing/afad145
[12] DARYONO D. 和 TUKIRAN M。影响 Daryo 牙科专科诊所患者满意度的 SERVQUAL 模型。国际社会与管理研究杂志，2024，5(1): 24–34。https://doi.org/10.5555/ijosmas.v5i1.384
[13] PRATAMA R. M.、PURNAMASARI P. 和 YUNIARTI L. 服务质量和医疗设施对患者满意度的影响。《印度尼西亚健康管理杂志》，2024，12(1): 35–44。
https://ejournal.undip.ac.id/index.php/jmki/article/download/61107/25866
[14] PRATAMA, M.R.A. 使用 SERVQUAL 和质量功能部署分析幼儿保育服务企业的服务质量。《工业工程杂志》：工业工程领域的研究成果和科学著作杂志，2024, 10(1): 91-99。 http://eprints.umg.ac.id/id/eprint/10635
[15] IBRAHIM A.、FITRIANI L.、RUSKAN E. L.、SEVTIYUNI P. E. 和 SUARLI P. P. 使用 Servqual 方法分析临床服务质量的满意度。信息学与电信工程杂志，2024，7(2)：385–396。
https://doi.org/10.31289/jite.v7i2.11171
[16] WU J.-H., LEE K.-T., CHENG K.-I., DU J.-K., 和 LEE C.-Y. 患者对麻醉前口腔检查服务质量的感知：基于 SERVQUAL 模型的横断面研究。BMC口腔健康，2024, 24(1): 120. https://doi.org/10.1186/s12903-024-03853-2
[17] BUSTAMANTE M. A., TELLO M., CARVACHE-FRANCO M., FRANCO O. C., 和 CARVACHE-FRANCO W. 厄瓜多尔瓜亚斯省初级卫生保健服务质量差距的统计测定。 PLoS ONE, 2024, 19(3): e0299994。https://doi.org/10.1371/journal.pone.0299994

[18] ADOMAH-AFARI, A. 和 BUCKMAN, G. 原文：加纳阿克拉一家私人医疗机构患者对服务质量的满意度。《国际护理科学杂志》，2024, 17: 257-268。https://internationaljournalofcaringsciences.org/docs/26.afari.pdf
[19] KRUGER, F. 和 MITCHELL, B.研究方法。牛津大学出版社, 2022.
[20] Smartpls.产品 | SmartPLS。Smartpls.com, 2024.
[21] SAUNDERS, M.、LEWIS, P. 和 THORNHILL, A. 商学院学生研究方法（第 4 版）。培生教育，2019 。

Word count: 8,510 words, excluding references.

Peer review information:
Whether the manuscript was fast tracked? - No
Number of reviewer report submitted in first round: 3 reports
Number of revision rounds: 3 rounds
Final revised version submitted: April 27, 2025