



Service Quality and Customer Satisfaction in App-Based Food Delivery Services: Empirical Evidence from Lagos Island, Lagos State Nigeria

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Abstract

The study examined the effect of service quality dimensions on customer satisfaction in app-based food delivery services in Lagos Island, Lagos State, Nigeria. Specifically, it investigated how reliability, responsiveness, assurance, empathy, and tangibles influence customer satisfaction within the context of emerging digital platforms. A quantitative research design was adopted, and data were collected through a structured questionnaire administered to users of online food delivery platforms. The findings revealed that reliability emerged as the most critical determinant, followed by responsiveness, assurance, and empathy and tangibles in that order of size of regression coefficients. The results further indicated that customers generally expressed mixed perceptions of service quality, reflecting inconsistencies in service delivery rather than clearly positive or negative experiences. In sum, the study establishes that functional service quality takes precedence over tangible aspects in shaping customer satisfaction. The study therefore concludes that consistent and reliable service delivery is the most significant factor influencing customer satisfaction in app-based food delivery services, particularly in environments characterized by infrastructural and operational challenges. Accordingly, the study recommends that app-based food delivery platforms should prioritize operational efficiency, particularly in ensuring order accuracy and timely delivery, as these are fundamental drivers of customer satisfaction. Emphasis should also be placed on improving communication, building customer trust, and enhancing service responsiveness. Investments in backend service coordination and effective complaint resolution mechanisms are more critical than focusing solely on the visual appeal of applications.

Keywords: Customer satisfaction, Lagos Island, Nigeria, Online food delivery, Service quality

1.0 Introduction

The rapid expansion of internet and mobile technologies has transformed service delivery across industries, with the food service sector experiencing significant change through the emergence of app-based food delivery platforms. These platforms integrate ordering, payment, and logistics into a single system, enabling consumers to access restaurant meals with minimal effort. In urban environments such as Lagos, where time constraints and mobility challenges influence consumption behavior, the adoption of these services has increased steadily, particularly among young and digitally active populations (Ogunleye & Adebayo, 2023). Despite this growth, an important question remains regarding the factors that sustain continued usage of these platforms. One line of argument suggests that convenience, accessibility, and variety are sufficient to maintain customer engagement. However, another perspective emphasizes that while convenience may drive initial adoption, sustained usage depends on the quality of service experienced during actual transactions (Saad, 2021). This creates a tension between access-driven consumption and performance-based evaluation, raising the need to examine whether customers prioritize ease of use or the consistency of service delivery.

Service quality in app-based food delivery extends beyond the digital interface to include multiple operational components such as order accuracy, timeliness of delivery, responsiveness to complaints, and the conduct of delivery personnel. The SERVQUAL framework provides a structured way of examining these elements through dimensions such as reliability, responsiveness, assurance, empathy, and tangibles (Gupta & Duggal, 2022). While these dimensions have been widely applied in service research, their relevance may vary depending on the operational environment within which services are delivered. In the case of Lagos Island, service delivery is shaped by infrastructural and logistical conditions that differ from those in more structured urban systems. Traffic congestion, high population density, and irregular addressing systems introduce uncertainty into last-mile delivery operations, which may affect how customers evaluate service performance. In such conditions, it is unclear whether customers place greater importance on functional outcomes such as accuracy and timeliness or on experiential attributes such as interface design and presentation. This raises an important issue regarding whether traditional service quality dimensions operate in the same way within this environment.

Customer satisfaction represents the outcome of customers' evaluation of service performance relative to their expectations. According to expectation-confirmation theory, satisfaction is influenced by the extent to which perceived performance meets or deviates from prior expectations (Oliver, 1980). In digital service environments, some studies suggest that technological efficiency and ease of interaction are sufficient to generate satisfaction. However, other studies argue that satisfaction is primarily determined by the outcome of the service process, particularly in situations where service execution involves multiple actors and potential points of failure (Wu *et al.*, 2024). This creates uncertainty regarding the dominant drivers of satisfaction in app-based food delivery services. Empirical studies on online food delivery have largely focused on Asian and Western markets, where infrastructural conditions and service systems differ significantly from those in Nigeria (Hong *et al.*, 2021; Meena & Kumar, 2022). Although some studies have examined service quality within the Nigerian environment, they often adopt broad regional perspectives that may not capture location-specific variations in service delivery experiences (Anyanwu *et al.*, 2023; Akpan & Etuk, 2024). Lagos Island, with its unique combination of commercial activity and logistical constraints, provides a suitable setting for examining how service quality dimensions influence customer satisfaction under such conditions. This study addresses this gap by examining the effect of service quality on customer satisfaction in app-based food delivery services in Lagos Island, Lagos State, Nigeria. Specifically, the study evaluates the influence of reliability, responsiveness, assurance, empathy, and tangibles on customer satisfaction. This focus on service quality dimensions provides empirical evidence on the aspects of service delivery that most strongly shape customer evaluation and contributes to a clearer understanding of how service quality operates in app-based food delivery systems.

2.0 Literature Review

2.1 Conceptual Review

This section reviews key concepts and empirical findings relevant to service quality, satisfaction, and loyalty in the OFD sector.

2.1.1 Service Quality in Online Food Delivery

Recent scholarship has extended service quality conceptualization to capture the hybrid digital-physical nature of online food delivery platforms. Cheng *et al.* (2021) developed an OFD-

specific service quality scale incorporating dimensions such as reliability, meal quality maintenance, hygiene, assurance, security, system operation, and traceability. Wu *et al.* (2024) demonstrated that fulfillment-related failures, including missing items, cold food, and delays, represent the strongest drivers of dissatisfaction, positioning reliability as the backbone of quality perceptions. Digital service quality encompasses efficiency in navigation, application responsiveness, information accuracy regarding menus, pricing, and delivery estimates, and secure payment systems (Dhiya *et al.*, 2024; Prasetyo *et al.*, 2022). Fulfillment and reliability dimensions address order accuracy, delivery timeliness, and food condition upon arrival, with studies consistently showing that delivery performance strongly predicts satisfaction and reuse intention (Meena & Kumar, 2022; Shankar *et al.*, 2022). Delivery and frontline interactions assume particular importance in online food delivery due to the human element introduced through delivery personnel, whose professionalism, courtesy, and hygiene practices significantly influence quality evaluations (Azman *et al.*, 2021; Elvandari *et al.*, 2018). Privacy and security dimensions have gained increasing attention as customers regularly input sensitive financial data into platforms, making robust cybersecurity and transparent data usage policies essential service quality components (Kapoor *et al.*, 2021; Lu *et al.*, 2020). Emerging research also emphasizes emotional and experiential dimensions, including how social media interactions and community engagement shape service quality perceptions indirectly through trust and relational value (Alalwan, 2022; Harrigan *et al.*, 2021).

The SERVQUAL Model specifies the attributes customers use to judge performance (Parasuraman *et al.*, 1988). The model conceptualizes service quality as the gap between expectations and perceptions across five (5) core dimensions which provide the tangible and intangible attributes against which customers evaluate their OFD experience. These dimensions, which underpin this study, are highlighted hereunder.

- i. Reliability: The ability to perform the promised service dependably and accurately (e.g., accurate orders, timely delivery, correct payment processing).
- ii. Responsiveness: The willingness to help customers and provide prompt service (e.g., efficient complaint handling, quick query resolution via chat support).
- iii. Assurance: The knowledge and courtesy of employees (including delivery riders) and their ability to inspire trust and confidence (e.g., professional rider conduct, secure payment gateways).
- iv. Empathy: The caring, individualized attention the service provides (e.g., personalized restaurant recommendations, handling of special instructions).
- v. Tangibles: The physical and digital evidence of the service (e.g., application interface usability, food packaging quality, rider presentation).

2.1.2 Customer Satisfaction in Online Food Delivery Platforms

Customer satisfaction in online food delivery represents a multi-dimensional construct determined by intrinsic food quality, digital ordering experience, delivery performance, packaging and hygiene, pricing and promotions, and post-purchase support responsiveness (Cheng *et al.*, 2021; Kotler and Keller, 2019; Wu *et al.*, 2024). Empirical studies consistently demonstrate that higher service quality leads to stronger satisfaction, which in turn fosters loyalty and repurchase intentions (Ghifari *et al.*, 2024; Laetitia *et al.*, 2023; Navneet, 2023). The relationship between service quality and loyalty operates through mediating mechanisms including customer satisfaction and trust. Siti *et al.* (2024) found that e-service quality significantly influenced e-trust and e-satisfaction, which positively impacted customer loyalty. Similarly, Anik *et al.* (2023) demonstrated that customer satisfaction with application interface

and delivery quality leads to greater loyalty in online delivery contexts. These findings suggest that fostering satisfaction and trust in highly competitive environments requires systematic attention to multiple service quality dimensions. Nigerian studies complement international findings by revealing how local contexts shape loyalty formation. Akpan and Etuk (2024) observed that e-service quality dimensions, including fulfillment, responsiveness, and security, significantly enhance loyalty among Nigerian online shoppers. Etuk et al. (2024) further revealed that demographic factors such as age and education moderate the relationship between e-service fulfillment and loyalty, with older and more educated customers demonstrating stronger loyalty when services meet expectations. In the fast-food sector, Anyanwu et al. (2023) found that reliability and responsiveness are key predictors of brand loyalty, while tangibles such as physical appearance were less significant. These local studies underscore the importance of context-specific investigation, validating the need for a study that applies an integrated ECT-SERVQUAL framework within the unique urban landscape of Lagos Island.

2.2 Theoretical Review

This study is underpinned by a dual theoretical framework that integrates the Expectation-Confirmation Theory with the SERVQUAL model. Rather than viewing service quality and satisfaction as isolated constructs, this framework posits that service quality, usually coded as SERVQUAL, constitutes the core ‘performance’ component within ECT’s cognitive comparison process. This integration provides a robust lens for examining customer satisfaction and loyalty in the online food delivery (OFD) context, particularly within the infrastructurally complex environment of Lagos Island.

2.2.1 Expectation-Confirmation Theory (ECT)

Oliver (1980, 1981), provide the primary theoretical foundation for understanding the psychological process of satisfaction formation. ECT posits that satisfaction is not a direct response to an objective service outcome but results from a cognitive comparison between pre-purchase expectations and perceived performance. The theory delineates a sequential process: (1) consumers form initial expectations based on prior experiences, marketing communications, and word-of-mouth; (2) they experience the service performance; (3) they compare the perceived performance against their initial expectations, leading to a state of confirmation or disconfirmation; and (4) based on this outcome, they develop satisfaction or dissatisfaction, which subsequently influences post-purchase behaviors such as repurchase intention and loyalty.

In the context of OFD platforms, ECT explains why identical service outcomes (e.g., a 45-minute delivery) may produce different satisfaction evaluations. For a customer whose expectations were set by a platform's marketing promise of ‘30-minute delivery,’ this outcome constitutes negative disconfirmation, leading to dissatisfaction. Conversely, a customer who expected a longer wait due to knowledge of local traffic patterns may experience positive disconfirmation and high satisfaction. This theoretical lens is particularly relevant for understanding satisfaction formation in Lagos Island, where a potential disconnect exists between platform marketing communications and the realities of infrastructural constraints.

2.2.2 SERVQUAL Model

While ECT outlines the *process* of satisfaction formation, it does not specify the *attributes* customers use to judge performance. To address this, we integrate the SERVQUAL model (Parasuraman et al., 1988), which conceptualizes service quality as the

gap between expectations and perceptions across five core dimensions. These dimensions provide the tangible and intangible attributes against which customers evaluate their OFD experience:

- i. Reliability: The ability to perform the promised service dependably and accurately (e.g., accurate orders, timely delivery, correct payment processing).
- ii. Responsiveness: The willingness to help customers and provide prompt service (e.g., efficient complaint handling, quick query resolution via chat support).
- iii. Assurance: The knowledge and courtesy of employees (including delivery riders) and their ability to inspire trust and confidence (e.g., professional rider conduct, secure payment gateways).
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- v. Tangibles: The physical and digital evidence of the service (e.g., application interface usability, food packaging quality, rider presentation).

2.2.3 Theoretical Integration and Justification

The integration of ECT and SERVQUAL is essential for a comprehensive analysis of OFD satisfaction for several reasons. First, ECT provides the procedural mechanism, explaining *how* satisfaction is formed through the disconfirmation paradigm. Second, SERVQUAL provides the content, specifying the five core *dimensions* (the ‘what’) that constitute the perceived performance that is compared against expectations. In this integrated framework, a customer’s evaluation of an OFD platform is not a single, monolithic judgment. Instead, it is a multi-dimensional process where they hold distinct expectations for each SERVQUAL dimension (e.g., expecting a reliable delivery time and an empathetic support team) and form separate disconfirmation judgments for each. This dual framework is particularly justified for this study’s context, Lagos Island. The hybrid digital-physical nature of OFD requires a model that can account for both digital interactions (system operation, app interface) and physical fulfillment (delivery, food condition). SERVQUAL’s dimensions, particularly when adapted for e-commerce (Parasuraman et al., 2005), capture this duality. Furthermore, ECT’s emphasis on expectations is critical in a market where aggressive marketing often sets high standards that may clash with on-the-ground realities like traffic congestion and logistical challenges. By integrating these two frameworks, this study can systematically map how service quality along specific dimensions (e.g., reliability of delivery time) leads to confirmation or disconfirmation of expectations, ultimately shaping satisfaction and loyalty among Lagos Island consumers.

2.3 Empirical Literature Review

2.3.1 Delivery Speed and Timeliness

Delivery speed consistently emerges as a paramount determinant of OFD satisfaction across geographic contexts. Jiao et al. (2023), in a study of 2,584 orders from [Eleme.com](https://www.leetcode.com), one of China's largest OFD platforms, employed panel vector autoregressive (PVAR) analysis to examine stakeholder interactions. Their findings confirmed bidirectional causality between food preparation time and actual delivery time, demonstrating that delivery performance directly influences sales volume, a proxy for customer satisfaction and retention. The study's use of objective platform data rather than self-reported perceptions strengthens the validity of these findings. In the logistics business context, research examining delivery speed as a

component of service quality confirms that timeliness significantly influences customer satisfaction, with delays representing the primary source of dissatisfaction (Perumal et al., 2021). The methodological approach in this stream typically employs structural equation modeling (SEM) to test hypothesized relationships between delivery metrics and satisfaction outcomes. A 2024 industry study by Intouch Insight, analyzing 1,356 third-party delivery orders across DoorDash, Uber Eats, and Grubhub, revealed that order batching, drivers making multiple deliveries per trip, extended delivery times by 13 minutes and 34 seconds on average, with direct deliveries producing significantly higher customer satisfaction ratings. This study employed mystery shopping methodology and multivariate analysis of satisfaction determinants, providing robust evidence that unmediated delivery speed strongly predicts positive evaluations.

2.3.2 Food Quality and Temperature Maintenance

Food quality, encompassing appearance, flavor, freshness, and temperature, significantly enhances customer satisfaction and drives repurchase intentions. A study by Azman et al. (2021) conducted in Malaysia analyzed 259 home delivery service recipients using partial least squares structural equation modeling (PLS-SEM). Their findings revealed that service quality of delivery personnel directly influences perceived value and satisfaction, with trust in delivery personnel serving as a partial mediator. Notably, this study was situated in a developing country context (Bangladesh), providing comparative insights applicable to Nigerian settings. Zhong and Moon (2020), examining OFD in South Korea, demonstrated that food quality maintenance during delivery, specifically temperature retention and packaging integrity, represents a distinct service dimension separable from restaurant food quality. Their study employed confirmatory factor analysis to validate measurement instruments, establishing that delivery-mediated food quality influences satisfaction independently of intrinsic meal attributes.

2.3.3 Order Accuracy

Order accuracy represents a fundamental consumer expectation, with errors in missing items or incorrect dishes substantially contributing to dissatisfaction. The Intouch Insight (2024) study identified order accuracy as one of three primary drivers of overall satisfaction alongside delivery speed and food temperature. Their analysis revealed that accuracy rates vary significantly across platforms and restaurant types, with independent restaurants demonstrating higher accuracy than chain establishments. The consequences of order inaccuracy extend beyond immediate dissatisfaction. When delivery errors occur, the resolution process, whether customers receive refunds, redelivery, or compensation, shapes post-failure satisfaction. This finding underscores the interdependence between accuracy and customer service responsiveness.

2.3.4 Platform Usability and System Operation

Platform usability affects satisfaction through perceived ease of use and usefulness, with glitchy applications or confusing interfaces negatively impacting evaluations. Bonfanti et al. (2023), investigating technology acceptance among 247 microentrepreneurs, demonstrated that perceived usefulness and attitude toward platform usage significantly predict behavioral intention. While their study focused on social networking sites, the Technology Acceptance Model (TAM) framework has been extensively validated in OFD contexts, establishing that system operation quality, including navigation efficiency, loading speed, and interface

intuitiveness, directly shapes user satisfaction. A systematic literature review by Ramdhansya *et al.* (2025) examined 476 papers and identified 15 key studies on OFD satisfaction evaluation. Their review revealed that sentiment analysis and PLS-SEM are the most frequently employed analytical methods, each appearing in six studies. Satisfaction measurement in this stream relies on sentiment polarity scores (five studies) and SERVQUAL-based frameworks (three studies), demonstrating the methodological diversity in this research domain.

2.3.5 Customer Service and Problem Resolution

The effectiveness of customer service and problem resolution proves vital for maintaining satisfaction when service failures occur. Gani *et al.* (2023) examined service recovery mechanisms in OFD contexts, finding that responsive complaint handling, particularly through real-time chat support, significantly mitigates dissatisfaction from delivery failures. Their research employed experimental vignette methodology to isolate the effects of different recovery strategies on post-failure satisfaction.

2.3.6 Payment Method Flexibility and Security

Payment method flexibility and security influence satisfaction through convenience and confidence in transaction safety. Kurniawan *et al.* (2024) investigated perceived security in mobile financial transactions, employing structural equation modeling to demonstrate that security perceptions significantly influence customer satisfaction and continuance intention. Their study, presented at the IEEE International Conference on Information Technology, validated that robust cybersecurity measures and transparent data usage policies are essential service quality components. Prasetyo *et al.* (2021), in a study of 190 Indonesian university students, examined technology readiness and learning interest during COVID-19. Although focused on educational technology, their methodological approach, using paired sample t-tests to measure pre-post differences, demonstrates the value of longitudinal designs in capturing satisfaction dynamics. In OFD contexts, such approaches remain underutilized.

2.3.7 Geographic Distribution and Contextual Factors

A meta-analytic review by Jebarajakirthy *et al.* (2024) synthesized fragmented OFD literature using UTAUT, value-based adoption, and brand relationship quality frameworks. Their analysis, based on 117 independent samples, revealed that contextual factors, including country development status, smartphone penetration rates, and cultural orientations, significantly moderate the relationships between service quality and satisfaction outcomes. Specifically, the effects of various enablers on value perceptions and subsequent satisfaction were stronger among developed-country consumers than developing-country consumers. This geographic heterogeneity has important implications for the present study. Most existing OFD research originates from East Asian (China, South Korea, Malaysia) and Western (United States, Europe) contexts, with limited representation of Sub-Saharan African settings. Within the Nigerian context, studies remain sparse. Akpan and Etuk (2024) examined e-service quality dimensions among Nigerian online shoppers, finding that fulfillment, responsiveness, and security significantly enhance loyalty. Etuk *et al.* (2024) further revealed that demographic factors such as age and education moderate the relationship between e-service fulfillment and loyalty, with older and more educated customers demonstrating stronger loyalty when services meet expectations. In the fast-food sector, Anyanwu *et al.* (2023) found that reliability and responsiveness are key predictors of brand loyalty in Nigeria, while tangibles such as physical appearance were less significant.

3.0 Methodology

3.1 Research Design

This study adopted a quantitative survey based inferential research design, appropriate for describing population characteristics and examining relationships between service quality dimensions and customer satisfaction without manipulating variables. The design enabled efficient data collection from 384 sample size while facilitating measurement of perceptions, attitudes, and opinions central to the research objectives.

3.2 Population and Sampling

The target population comprised adult residents aged 18 years and above of Lagos Island Local Government Area, Lagos State, Nigeria, who are using online food delivery services at least once within the preceding 12 months. This criterion ensured that respondents possessed recent experiential familiarity necessary for reliable service quality assessment. The sample size was determined using Cochran's (1977) formula for unknown populations: $n = Z^2p(1-p)/e^2$. Using a 95% confidence level ($Z = 1.96$), maximum variability proportion ($p = 0.5$), and 5% margin of error ($e = 0.05$), the calculation yielded a target sample of 384 respondents. A non-probability sampling approach combining convenience and snowball techniques was utilized. Initial data collection points included public locations within Lagos Island such as shopping malls, university campuses, residential areas, and eateries utilizing online delivery platforms, where potentially eligible respondents were approached. Subsequent snowball sampling involved requesting initial respondents to identify other eligible users within their networks. This pragmatic approach was necessitated by the absence of a comprehensive sampling frame while enabling access to the specific user population within the defined geographical area.

3.3 Data Collection

Data were collected using a structured questionnaire divided into four sections. Section A considered demographic information, including age, gender, occupation, income level, and education. Section B measured the five SERVQUAL dimensions adapted to online food delivery contexts, comprising reliability (four items measuring timeliness, accuracy, transaction correctness, and order condition), responsiveness (four items assessing complaint response, issue resolution, order updates, and rider attention), assurance (four items examining payment security, personnel professionalism, data protection, and trust), empathy (four items evaluating preference consideration, concern understanding, courtesy, and service tailoring), and tangibles (four items assessing application visual appeal, interface navigation, rider appearance, and packaging presentation). Section C measured customer satisfaction through three items examining experience, expectation fulfillment, and future usage intention. Section D explored customer complaints and challenges through closed and open-ended questions. All perceptual items employed a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Items were adapted from validated scales in service quality research and reviewed by experts in marketing and research methodology to ensure content validity and contextual appropriateness. Questionnaires were administered through face-to-face encounters with respondents at selected locations within Lagos Island between February and March 2024. Research assistants trained in survey administration provided clarification when needed while maintaining response independence. A total of 400 questionnaires were distributed, with 384 fully completed and usable responses retained for analysis, representing a 96% response rate.

3.4 Data Analysis

Data analysis employed both descriptive and inferential statistical techniques using SPSS version 28. Descriptive statistics, including frequencies, percentages, means, and standard deviations, summarized respondent characteristics and item-level perceptions. Multiple regression analysis tested the hypothesized relationships between service quality dimensions and customer satisfaction. Preliminary analyses confirmed compliance with regression assumptions including normality (skewness and kurtosis within ± 1 range), independence of residuals (Durbin-Watson = 1.989), and absence of multicollinearity (variance inflation factors < 1.531 , condition indices < 30)

3.5 Model Specification

Based on the integration of Expectation-Confirmation Theory and the SERVQUAL model, this study conceptualizes customer satisfaction as a function of perceived service quality across five dimensions: reliability, responsiveness, assurance, empathy, and tangibles. These dimensions represent the key attributes through which customers evaluate service performance in-app-based food delivery platforms. The conceptual model proposes that each service quality dimension exerts a direct influence on customer satisfaction. In line with this framework, customer satisfaction is modeled as the dependent variable, while the five SERVQUAL dimensions serve as independent variables. To empirically test these relationships, the study adopts a multiple regression model specified in Equation 1.

$$CS = \beta_0 + \beta_1REL + \beta_2RES + \beta_3ASS + \beta_4EMP + \beta_5TAN + \varepsilon \quad [1.]$$

where CS is the Customer Satisfaction, REL is the reliability, RES is the responsiveness, ASS is the assurance, EMP is the empathy, TAN is the tangibles, β_0 is the constant term, β_1 – β_5 are the regression coefficients, and ε is the error term. This model enables the estimation of the individual and collective effects of service quality dimensions on customer satisfaction, thereby directly addressing the study objectives.

4.0 Results and Discussion

4.1 Validity and Reliability

Content validity was established through a comprehensive literature review and an expert panel review of questionnaire items. Face validity was assessed during pilot testing with 30 respondents, who evaluated item clarity and appropriateness, resulting in minor refinements. Construct validity was subsequently assessed through factor analysis. Reliability was evaluated using Cronbach's alpha coefficient for internal consistency. As presented in Table 1, all constructs exceeded the acceptable threshold of 0.70 (Hair *et al.*, 2010), with reliability ($\alpha = 0.812$), responsiveness ($\alpha = 0.828$), assurance ($\alpha = 0.825$), empathy ($\alpha = 0.832$), tangibles ($\alpha = 0.846$), and satisfaction ($\alpha = 0.814$) demonstrating good internal consistency.

Table 1. Reliability Analysis of Study Constructs

Construct	Cronbach's Alpha	Number of Items
Reliability	0.812	4
Responsiveness	0.828	4
Assurance	0.825	4
Empathy	0.832	4
Tangibles	0.846	4
Satisfaction	0.814	3

Source: Authors' Computation 2026

4.2 Demographic Characteristics of Respondents

Table 2. Demographic Characteristics of Respondents

Variable	Category	Frequency	Percentage (%)
Gender	Male	222	57.8
	Female	162	42.2
	Total	384	100.0
Age Group	18–24 years	153	39.8
	25–34 years	127	33.1
	35–44 years	63	16.4
	45 years and above	41	10.7
	Total	384	100.0
Education	Secondary School	41	10.7
	Diploma/NCE	82	21.4
	HND/Bachelor's Degree	201	52.3
	Postgraduate Degree	60	15.6
	Total	384	100.0
Monthly Income	Less than ₦50,000	93	24.2
	₦50,000–₦100,000	119	31.0
	₦100,001–₦200,000	111	28.9
	Above ₦200,000	61	15.9
	Total	384	100.0
Order Frequency	Rarely	37	9.6
	Once a month	116	30.2
	Weekly	157	40.9
	Several times weekly	74	19.3
	Total	384	100.0
Platform Used	Jumia Food	119	31.0
	Glovo	70	18.2
	Bolt Food	88	22.9

Uber Eats	59	15.4
HeyFood	48	12.5
Total	384	100.0

Source: Authors' Computation 2026

Table 2 presents the demographic characteristics of the 384 respondents. Gender distribution showed moderate male dominance (57.8%) relative to females (42.2%). Age distribution was strongly youth-centered, with 72.9% of respondents falling within 18-34 years and only 10.7% above 45 years, confirming that digital food delivery services are primarily patronized by young adults characterized by higher digital literacy and time-sensitive lifestyles. Educational attainment indicated that 67.9% possessed tertiary education (HND/Bachelor's degree or postgraduate qualification), suggesting respondents were capable of critically evaluating platform performance and strengthening the credibility of perceptual measures. Income distribution concentrated within low-to-middle earnings brackets (₦50,000-₦200,000: 59.9%), implying food delivery usage represents an accessible urban lifestyle service rather than being restricted to high-income consumers. Behavioral engagement indicators revealed substantial platform interaction, with 60.2% ordering weekly or several times weekly, indicating repeated experiential familiarity necessary for reliable service quality assessment. Platform usage distributed across major Nigerian services including Jumia Food (31.0%), Bolt Food (22.9%), Uber Eats (15.4%), Glovo (18.2%), and HeyFood (12.5%), suggesting multi-platform exposure enabling comparative service evaluation rather than brand-specific bias.

4.3 Regression Analysis Results

To achieve the stated objectives of this study, multiple regression analysis was employed to examine the effect of service quality dimensions, reliability, responsiveness, assurance, empathy, and tangibles, on customer satisfaction in app-based food delivery services in Lagos Island. The analysis was based on the model specified in Equation (1), which conceptualizes customer satisfaction as a function of the five SERVQUAL dimensions. The results of the regression model, as presented in Table 3, indicate a moderate positive relationship between service quality and customer satisfaction ($R = 0.526$). The coefficient of determination ($R^2 = 0.277$) shows that approximately 27.7% of the variation in customer satisfaction is explained by the combined influence of reliability, responsiveness, assurance, empathy, and tangibles. The adjusted R^2 value of 0.267 indicates that the model retains reasonable explanatory power after accounting for the number of predictors included. In addition, the Durbin-Watson statistic of 1.989 indicates that the residuals are independent, confirming that the assumption of no autocorrelation is satisfied.

Table 3: Regression Model Summary.

Model	R	R ²	Adjusted R ²	Std. Error of the Estimate	F Change	df1	df2	Sig. F Change	Durbin-Watson
1	0.526	0.277	0.267	0.561	28.96	5	378	0	1.989

Following the estimation of the multiple regression model, an analysis of variance (ANOVA) was conducted as an integral component of the regression procedure. In ordinary least squares (OLS) regression, ANOVA provides the F-test for overall model significance. This test evaluates whether the combined effect of all independent variables (reliability, responsiveness, assurance, empathy, and tangibles) explains a statistically significant amount of variance in the dependent variable (customer satisfaction). The null hypothesis is that all regression

coefficients (β_1 through β_5) equal zero, implying no linear relationship between the predictors and the outcome. Rejecting this null hypothesis ($p < 0.05$) justifies interpreting the individual coefficients. Thus, ANOVA is not a separate analytical technique but rather the conventional method for assessing model fit in regression (Field, 2018; Montgomery, Peck, & Vining, 2021). The statistical significance of the regression model was evaluated using analysis of variance (ANOVA), as presented in Table 4.

Table 4: ANOVA Results

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	45.562	5	9.112	28.96	0
Residual	118.942	378	0.315		
Total	164.504	383			

The results show that the model is statistically significant, with $F(5,378) = 28.960$ and $p < 0.001$. This indicates that the service quality dimensions, when considered jointly, have a significant effect on customer satisfaction. This result provides empirical support for the broad objective of the study, which is to examine the impact of service quality on customer satisfaction in app-based food delivery services within Lagos Island. Further examination of the regression coefficients in Table 5 provides evidence on the individual contributions of each service quality dimension and allows for a direct assessment of the study objectives. Reliability was found to have a positive and statistically significant effect on customer satisfaction ($\beta = 0.300$, $t = 5.544$, $p < 0.001$), indicating that dependable service delivery, particularly in terms of order accuracy and timeliness, plays a dominant role in shaping customer evaluations. This finding directly addresses the objective relating to the effect of reliability and confirms its position as the most influential determinant of satisfaction.

Responsiveness also exhibited a significant positive effect on customer satisfaction ($\beta = 0.176$, $t = 3.336$, $p = 0.001$), indicating that prompt responses to customer inquiries and effective handling of service issues contribute to higher satisfaction levels. Assurance demonstrated a statistically significant relationship with customer satisfaction ($\beta = 0.153$, $t = 3.221$, $p = 0.001$), showing that customer confidence in the competence, professionalism, and security of service providers enhances satisfaction. Empathy, although comparatively weaker in magnitude, was also found to have a significant positive effect ($\beta = 0.102$, $t = 2.202$, $p = 0.028$), indicating that personalized attention and the ability of service providers to understand customer needs contribute to improved service evaluations. These results collectively address the second objective of the study, which examines the influence of responsiveness, assurance, and empathy on customer satisfaction. On the other hand, tangibles were found to have no statistically significant effect on customer satisfaction ($\beta = 0.020$, $t = 0.460$, $p = 0.645$), indicating that factors such as application design, packaging, and the physical appearance of delivery personnel do not significantly influence customer evaluations. This finding addresses the third objective of the study and indicates that customers place greater emphasis on functional aspects of service delivery than on visual or physical attributes. The regression results demonstrate that service quality dimensions, particularly reliability, responsiveness, and assurance, are significant predictors of customer satisfaction in app-based food delivery services in Lagos Island. The findings provide empirical evidence that directly addresses the

study objectives and confirm that variations in service quality dimensions account for differences in customer satisfaction.

Table 5: Regression Coefficients

Predictor	Unstandardized B	Std. Error	Standardized β	t	Sig.	Tolerance	VIF
(Constant)	0.383	0.259		1.479	0.14		
Reliability	0.354	0.064	0.300	5.544	0	0.653	1.531
Responsiveness	0.196	0.059	0.176	3.336	0.001	0.69	1.45
Assurance	0.174	0.054	0.153	3.221	0.001	0.843	1.187
Empathy	0.108	0.049	0.102	2.202	0.028	0.893	1.119
Tangibles	0.021	0.045	0.02	0.46	0.645	0.988	1.012

4.4 Discussion of Findings

The findings of this study provide empirical evidence on the effect of service quality dimensions on customer satisfaction in app-based food delivery services in Lagos Island. The regression results confirm that service quality significantly influences customer satisfaction, with varying levels of contribution across the five dimensions examined. Reliability was found to have the strongest and most significant effect on customer satisfaction. This indicates that customers primarily evaluate service performance based on the consistency and accuracy of order fulfillment. In the Lagos Island context, where operational challenges such as traffic congestion and delivery coordination issues are prevalent, the ability of service providers to deliver correct orders within expected timeframes becomes a central determinant of satisfaction. The descriptive results further support this finding, particularly the low evaluation of order accuracy, which suggests that errors in order fulfillment remain a critical source of dissatisfaction. This result is consistent with prior studies that identify reliability as a core determinant of service quality, but it also indicates that in this context, correctness of delivery may be more important than speed alone. Responsiveness was also found to have a significant positive effect on customer satisfaction, indicating that the ability of service providers to respond promptly to customer needs and resolve issues contributes meaningfully to service evaluation. However, the magnitude of its effect was lower than that of reliability, suggesting that responsiveness enhances satisfaction but does not compensate for failures in core service delivery. The descriptive findings indicate that while delivery personnel tend to respond adequately during order fulfillment, platform-based complaint handling remains less effective. This suggests that responsiveness in this context is partly dependent on individual interactions rather than structured service systems, which may introduce variability in customer experience.

Assurance demonstrated a significant positive relationship with customer satisfaction, indicating that customer confidence in the competence, professionalism, and security of the service provider contributes to satisfaction. The findings suggest that customers require a minimum level of trust in payment systems, data protection, and service execution in order to maintain continued usage of the platform. However, the magnitude of the effect indicates that assurance functions more as a supporting factor rather than a primary driver of satisfaction. This aligns with the expectation-confirmation perspective, where confidence in service delivery supports evaluation but does not replace performance-based judgments. Empathy was found to have a statistically significant but relatively weaker effect on customer satisfaction. This suggests that personalized attention and understanding of customer needs contribute to

satisfaction, but their influence is conditional on the effective delivery of core service functions. In app-based food delivery services, where interactions are largely mediated through digital platforms, opportunities for personalized engagement are limited. As a result, empathy enhances service evaluation only when reliability and responsiveness are adequately established.

However, tangibles were not found to have a significant effect on customer satisfaction. This indicates that factors such as application design, packaging, and the physical appearance of delivery personnel do not play a determining role in customer evaluation within this context. Although these elements contribute to the overall perception of service, they do not significantly influence satisfaction when compared with functional performance. This suggests that customers in Lagos Island prioritize outcome-based service attributes over aesthetic or physical characteristics. The model explains 27.7% of the variation in customer satisfaction, indicating that service quality dimensions account for a meaningful proportion of customer evaluation, while other factors not included in the model may also influence satisfaction. These may include pricing, promotional incentives, restaurant quality, and availability of menu options. This reflects the multi-dimensional nature of customer satisfaction in app-based service environments. The pattern of results suggests that customer satisfaction in Lagos Island is primarily driven by operational performance, particularly the ability to deliver orders accurately and consistently. Other service quality dimensions contribute to satisfaction but do so at different levels of importance. These findings reflect the contextual realities of service delivery in the study area, where infrastructural and logistical challenges affect the consistency of service performance.

5.0 Conclusion and Recommendations

This study examined the effect of service quality dimensions on customer satisfaction in app-based food delivery services in Lagos Island, Lagos State, Nigeria. Using a multiple regression framework grounded in the SERVQUAL model, the study evaluated the relative contribution of reliability, responsiveness, assurance, empathy, and tangibles to customer satisfaction. The findings establish that service quality is a significant determinant of customer satisfaction, with differences in the magnitude of influence across the dimensions. Reliability emerged as the most influential factor, indicating that customers place primary importance on accurate and dependable service delivery. Responsiveness and assurance were also found to significantly influence customer satisfaction, demonstrating the importance of timely service support and customer confidence in the competence and security of service providers. Empathy showed a positive but comparatively weaker effect, suggesting that personalized attention contributes to satisfaction when core service expectations are met. In contrast, tangibles did not have a significant effect on customer satisfaction, indicating that visual and physical aspects of service delivery are less critical in shaping customer evaluations. These findings indicate that customer satisfaction in app-based food delivery services in Lagos Island is driven primarily by functional service performance rather than aesthetic or experiential attributes. The results also show that while service quality explains a meaningful proportion of customer satisfaction, other factors beyond service interaction may also influence customer evaluations. The study contributes to existing literature by providing empirical evidence on the role of service quality in digital service environments within a developing economy. It also offers practical implications for service providers, particularly the need to prioritize operational efficiency, order accuracy, and consistent service delivery in order to enhance customer satisfaction.

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