



The Effects of the Reliability of Amenities on Student Satisfaction in Privately Owned University Hostels Within Langata Sub-County, Nairobi

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Abstract: This study examined the effects of amenity reliability on student satisfaction in privately owned university hostels within Langata Sub-County, Nairobi, Kenya. Grounded in Discomfort Theory, Herzberg's Two-Factor Theory, and the SERVQUAL Model, the research addressed service quality gaps affecting student residential experiences. A quantitative cross-sectional survey design was employed, targeting 2,399 students across 22 hostels. Using Yamane's formula, 216 students were sampled through proportional stratified random sampling, yielding 205 questionnaires (95% response rate). Data collected via structured questionnaires measured amenity reliability (water, electricity, internet, maintenance) and student satisfaction using 5-point Likert scales. Descriptive statistics, Pearson correlation, and multiple linear regression analyses were conducted using STATA. Results revealed moderate amenity reliability ($M = 3.30$, $SD = 1.00$), with electricity being most problematic ($M = 3.20$). Student satisfaction was moderately high ($M = 3.75$, $SD = 0.80$), indicating compensatory mechanisms beyond infrastructure quality. A strong positive correlation emerged between amenity reliability and satisfaction ($r = .650$, $p < .01$), with amenity reliability explaining 42.3% of satisfaction variance ($R^2 = .423$). The regression coefficient ($B = .650$, $p < .001$) demonstrated that each unit increase in amenity reliability yielded proportional satisfaction gains. Findings indicate that while reliable amenities function as hygiene factors preventing dissatisfaction, social relationships and autonomy serve as independent satisfaction motivators. The study recommends prioritizing electricity infrastructure improvements, implementing community-building initiatives, and adopting transparent communication strategies to manage student expectations and enhance residential experiences in urban university settings.

Keywords: Amenity Reliability, Customer Satisfaction, Hostels, Service Quality, SERVQUAL

1.1 Introduction

The rapid expansion of higher education in sub-Saharan Africa has intensified demand for student accommodation, particularly in urban centres where campus housing remains insufficient. In Kenya, university enrollment increased from 118,239 students in 2007 to over 520,000 by 2020, creating substantial accommodation deficits that private hostels have emerged to address (Commission for University Education, 2021). Langata Sub-County in Nairobi exemplifies this phenomenon, hosting eight universities with limited on-campus housing, thereby compelling students to seek privately owned accommodation. These hostels have become integral to students' university experiences, serving not merely as residential spaces but as environments directly influencing academic performance, psychological well-being, and overall satisfaction (Khozaei et al., 2019; Thomsen & Eikemo, 2010).

Despite their proliferation, privately owned hostels in Kenya face persistent service quality challenges, particularly regarding amenity reliability. Students frequently encounter inconsistent water supply, frequent electricity outages, unreliable internet connectivity, and inadequate maintenance disruptions that compromise daily routines, study patterns, and academic productivity (Khan, 2019; Ndung'u et al., 2019). These infrastructure inadequacies reflect broader systemic challenges in developing contexts where rapid urbanization outpaces infrastructural development, creating service delivery gaps between student expectations and actual experiences (PricewaterhouseCoopers, 2023). Globally, research demonstrates that reliable amenities constitute fundamental hygiene factors in student accommodation: their presence prevents dissatisfaction while their absence generates significant discomfort (Herzberg et al., 1959; Parasuraman et al., 1988). However, empirical evidence quantifying the relationship between amenity reliability and student satisfaction remains limited in Kenyan contexts, particularly for privately owned hostels operating under market-driven conditions distinct from publicly managed university accommodations.

The significance of this study lies in addressing three critical gaps. Conceptually, existing research often treats service quality as a monolithic construct without disaggregating specific dimensions like amenity reliability or examining their individual contributions to satisfaction (Sureshchandar et al., 2002). This study isolates amenity reliability as a discrete predictor, providing granular insights into how infrastructure performance specifically influences residential satisfaction. Contextually, while international studies document amenity-satisfaction relationships in developed economies with stable infrastructure (Gong & Söderberg, 2023; Velasco & Davis, 2021), limited research explores these dynamics in infrastructure-challenged developing contexts where amenity variability is pronounced. Methodologically, prior Kenyan studies have predominantly employed qualitative approaches or focused on public university hostels (Oluoch, 2020), leaving privately owned accommodations which operate under different governance, funding, and accountability structures underexplored quantitatively.

This study therefore examined how amenity reliability affects student satisfaction in privately owned hostels, employing rigorous quantitative methods to establish empirical relationships. The findings offer evidence-based guidance for hostel operators seeking to enhance service delivery, inform policy frameworks for private accommodation regulation, and contribute to achieving Sustainable Development Goal 4 by ensuring that quality accommodation supports equitable educational outcomes. Understanding these relationships is particularly crucial as Kenya's higher education sector continues expanding, making student accommodation quality increasingly central to institutional competitiveness and student success.

1.2 Statement of the Problem

Student accommodation quality significantly influences academic performance and well-being, yet privately owned university hostels in Langata Sub-County face severe service quality deficits. Recent surveys indicate that 68% of students experience frequent electricity outages, 54% report inconsistent water supply, and 61% encounter unreliable internet connectivity (Cytonn Investments, 2022). These infrastructure inadequacies disrupt study routines, compromise academic productivity, and generate dissatisfaction among Kenya's expanding university population, which grew from 118,239 students in 2007 to over 520,000 by 2020 (Republic of Kenya, 2012). While international research establishes that amenity reliability explains 25-44% of residential satisfaction variance in developed contexts (Gong & Söderberg, 2023), three critical gaps persist: conceptually, existing studies treat service quality monolithically without isolating amenity reliability's specific contribution (Sureshchandar et al., 2002);

contextually, limited research examines infrastructure-satisfaction relationships in developing contexts where amenity variability is pronounced; methodologically, Kenyan studies predominantly employ qualitative approaches or focus on public hostels, leaving privately owned accommodations quantitatively underexplored, thereby depriving operators and policymakers of evidence-based frameworks for enhancing student residential experiences.

1.3 Literature Review

In this section, theoretical and empirical literature review on the effects of the reliability of amenities on student satisfaction in privately owned university hostels within Langata Sub-County, Nairobi City County.

1.3.1 Theoretical Framework

Discomfort Theory

Discomfort Theory, advanced by Katharine Kolcaba in the 1990s, explains how physical, emotional, and environmental discomfort motivates individuals to seek relief and restore equilibrium (Kolcaba, 1994). Originally rooted in nursing, the theory's relevance has expanded to psychology, education, and service quality, where discomfort is viewed as a driver of adaptive behaviour and satisfaction. Empirical evidence supports its versatility: Mittal et al. (2023) linked reduced discomfort to improved consumer loyalty, while Becker and Jaakkola (2020) found comfort interventions enhanced patient satisfaction. Similarly, Mills and Creedy (2019) demonstrated that alleviating discomfort in learning settings boosts engagement, and Simpeh and Shakantu (2020) identified physical discomfort as a key factor diminishing workplace productivity. However, critics argue that the theory oversimplifies human responses by assuming discomfort universally triggers change, disregarding resilience, personality, and social context (Singh et al., 2024). Moreover, external constraints such as culture and finances may inhibit action, as illustrated by McLoyd et al. (2009) in the Family Stress Model. Despite these limitations, Discomfort Theory remains pivotal for understanding satisfaction as a function of addressing multifaceted discomforts.

Herzberg's Two-Factor Theory

Herzberg's Two-Factor Theory (1959) distinguishes motivators intrinsic factors like achievement and recognition from hygiene factors extrinsic conditions like pay and environment that influence satisfaction and dissatisfaction differently. While motivators promote engagement and fulfilment, inadequate hygiene factors cause dissatisfaction even when motivators exist. The theory's validity is well-supported: Haddad and Hornuf (2019) and Sanjeev and Surya (2016) confirmed its application in healthcare, while Amzat et al. (2017) found professional growth and adequate teaching resources critical to teacher satisfaction. In hospitality and student accommodation, Zhang et al. (2024) and Diagne (2023) observed that aligning motivators (community, recreation) with hygiene aspects (cleanliness, safety) enhances satisfaction. Yet, critiques note blurred boundaries between motivators and hygiene factors and the theory's neglect of cultural and emotional nuances (Hur, 2018). It also assumes universal responses, overlooking context-specific perceptions, especially in collectivist cultures valuing stability over self-actualisation. Despite its simplifications, Herzberg's model remains instrumental in designing environments that balance extrinsic comfort with intrinsic fulfilment, thus reinforcing satisfaction in student accommodations and service contexts.

SERVQUAL Model

The SERVQUAL Model, developed by Parasuraman, Zeithaml, and Berry (1988), conceptualises service quality through five dimensions tangibility, reliability, responsiveness, assurance, and empathy

forming a comprehensive measure of perceived quality. Tangibility, reflecting physical facilities and appearance, shapes first impressions, while reliability ensures consistent and accurate service delivery (Sureshchandar et al., 2002; Ladhari, 2009). Responsiveness captures the timeliness and willingness to assist, assurance reflects staff competence and trustworthiness, and empathy embodies personalised care (Sibai et al., 2021; Hoque et al., 2023). Studies across education and hospitality confirm the model's robustness: Sibai et al. (2021) linked clean facilities to student satisfaction, Gregory (2019) associated responsiveness and reliability with wellbeing, and Djonlagic and Dedić (2015) highlighted empathy's role in strengthening relationships. Nonetheless, SERVQUAL faces critique for assuming uniform applicability across cultural contexts and for overemphasising perception gaps while neglecting emotional and contextual influences (Ladhari, 2009). In multicultural environments like Kenyan student accommodations, where priorities may differ, adaptation of SERVQUAL's dimensions is crucial to accurately capture and enhance service satisfaction.

1.3.2 Empirical Review

Reliability of Amenities and Student Satisfaction

Gabbianelli and Pencarelli (2023) explored the role of reliable amenities in enhancing student satisfaction in Italian university accommodations using a quantitative survey methodology, gathering data through structured questionnaires from 300 students and analysing them with regression analysis. In this study, the independent variable was the reliability of amenities, which include water, sanitation and internet, while the dependent variable was student satisfaction assessed through self-reported satisfaction scores. The findings indicated that consistent access to essential services significantly improved student satisfaction by minimising disruptions and supporting academic focus. Key factors driving this effect included uninterrupted resource availability, cleanliness, and safety standards, fostering a stable living environment. However, the study identified challenges such as high maintenance costs and ageing infrastructure, which strained hostel budgets.

To address these, the authors recommended regular maintenance schedules and partnerships with utility providers to ensure service reliability. Despite offering valuable insights, the research was limited to public accommodations and lacked a mediating variable like perceived value, differing from the current study's focus on private Kenyan hostels in Langata Sub-County and its inclusion of mediation analysis. Asante *et al.* (2022) investigated the impact of physical amenities on student satisfaction in Ghanaian university hostels using a mixed methods approach, collecting data through 250 surveys and 20 interviews, analysed with descriptive statistics and thematic analysis. The independent variable was the availability and quality of amenities (water, electricity), while the dependent variable was student satisfaction, measured via survey responses and qualitative narratives.

The findings revealed that unreliable amenities caused frequent disruptions, significantly reducing satisfaction and academic productivity. Key factors included consistent utility provision and maintenance responsiveness, which enhanced student experiences when met. Challenges included infrastructural limitations and funding constraints, leading to service interruptions. The study recommended that hostel management implement proactive maintenance and collaborate with service providers to improve reliability. Unlike the current study, which focuses on private hostels in Langata and tests perceived value's mediation, this study included both public and private facilities and used a broader Ghanaian context, limiting its specificity to Kenya.

Khan (2019) examined the role of reliable amenities in driving student satisfaction in Kenyan private hostels using a quantitative survey methodology, gathering data from 200 students via questionnaires

and analysing them with regression analysis. The independent variable was the reliability of amenities such as water supply and security while the dependent variable was student satisfaction, assessed through satisfaction ratings. The findings showed that consistent services significantly enhanced satisfaction by supporting daily routines and academic performance. Key factors included uninterrupted water and strong security measures, which students prioritised over luxury amenities. Challenges included high maintenance costs and resource scarcity, hindering service consistency. The study recommended that hostel operators invest in sustainable infrastructure to maintain reliable services. Unlike the current study, which targets Langata Sub-County and includes perceived value as a mediator, this study had a broader Nairobi focus and did not explore mediation, limiting its theoretical depth.

1.4 Methodology

Research Design and Setting: This study employed a quantitative cross-sectional survey design to examine amenity reliability and student satisfaction in privately owned university hostels. The research was conducted in Langata Sub-County, Nairobi, Kenya—a hub for multiple universities including Catholic University of Eastern Africa, Tangaza University, and Strathmore University. The area's concentration of diverse student accommodation facilities made it an ideal setting for investigating service quality variations.

Target Population and Sampling: The target population comprised 2,399 students residing in 22 privately owned hostels verified through the Catholic University of Eastern Africa hostel listing (Catholic University of Eastern Africa, 2024). Using Yamane's (1967) formula at a 95% confidence level with a 6.5% margin of error, a sample of 216 students was calculated:

$$n = N / [1 + N(e^2)] = 2,399 / [1 + 2,399(0.065^2)] = 216$$

Proportional stratified random sampling ensured representative distribution across all hostels, with each hostel treated as a stratum. Sample allocation was determined by the formula $n_i = (N_i/N) \times n$, where n_i represents students sampled from hostel i . Within each stratum, simple random sampling selected participants from hostel registers without replacement (Neyman, 1934; Rahman et al., 2022).

Data Collection: Data were collected using structured questionnaires measuring amenity reliability (water, electricity, internet, maintenance) and student satisfaction using 5-point Likert scales (1 = Strongly Disagree, 5 = Strongly Agree). Of 216 questionnaires distributed, 205 were returned (95% response rate), exceeding the 70% threshold recommended for reliable statistical analysis (Mugenda & Mugenda, 2009).

Instrument Validation: A pilot study with 24 students (10% of sample) from non-participating hostels established instrument reliability and validity. Cronbach's alpha coefficients exceeded 0.7 for all constructs: reliability of amenities ($\alpha = 0.78$) and student satisfaction ($\alpha = 0.81$), meeting acceptable reliability thresholds (Tavakol & Dennick, 2011). Content validity was confirmed through expert review by two faculty members and alignment with the SERVQUAL Model framework.

Data Analysis: Descriptive statistics (means, standard deviations, frequencies) summarize respondent characteristics and variable distributions. Pearson correlation analysis examined relationships between variables. Simple linear regression tested the relationship using the model:

$$Y = \beta_0 + \beta_1 X + \varepsilon$$

where Y = student satisfaction; X = reliability of amenities; β_0 and β_1 = regression coefficients; ε = error term.

Diagnostic tests verified model assumptions: Shapiro-Wilk test (normality), Variance Inflation Factor < 10 (multicollinearity), Breusch-Pagan test (homoscedasticity), Durbin-Watson statistic (error independence), and Cook's Distance (influential observations) (Hair et al., 2019; Wooldridge, 2016). All analyses were conducted using STATA at 95% confidence level ($\alpha = 0.05$).

Ethical Considerations: Ethical approval was obtained from Tangaza University Ethics Committee and the National Commission for Science, Technology and Innovation (NACOSTI). Informed consent was secured from all participants, with assurances of anonymity, confidentiality, and voluntary participation. Only students aged 18 years and above residing in target hostels for at least one semester were included. No personally identifiable information was collected, and all data were stored securely with access limited to the research team

1.5 Study Findings

Demographic Characteristics

The demographic characteristics of the 205 respondents are presented in Tables 1, 2, 3, 4 showing the distribution by gender, year of study, and hostel size.

Table 1: Gender Distribution of Respondents

Gender	Frequency	Percentage (%)
Male	98	47.8
Female	107	52.2
Total	205	100

Source: Field data, 2025

As shown in Table 1, female respondents constituted 52.2% ($n = 107$) of the sample, while male respondents represented 47.8% ($n = 98$). This indicates a relatively balanced gender distribution with only a 4.4 percentage point difference between the two groups. The near-equal representation of both genders enhances the generalizability of the findings, as the perspectives of both male and female students are adequately captured. This gender distribution is particularly important for understanding amenity reliability concerns, as male and female students may have different priorities and experiences regarding hostel facilities. The balanced representation ensures that the study findings are not biased toward the experiences of one gender, thereby providing a comprehensive view of how amenity reliability affects student satisfaction across the student population.

Table 2: Year of Study Distribution

Year of Study	Frequency	Percentage (%)
1st Year	62	30.2
2nd Year	51	24.9
3rd Year	51	24.9
4th Year	41	20.0
Total	205	100

Source: Field data, 2025

Table 2 reveals that first-year students formed the largest group, accounting for 30.2% ($n = 62$) of the sample. Second-year and third-year students each represented 24.9% ($n = 51$) of respondents, while fourth-year students comprised 20.0% ($n = 41$) of the sample. This distribution shows adequate representation across all academic levels, with a slight overrepresentation of first-year students. The higher proportion of first-year students is particularly significant for this study. First-year students are typically new to university accommodation and may have higher expectations based on their pre-arrival information or comparison with their home environments. Their perceptions of amenity reliability may be less influenced by adaptation or lowered expectations that can occur over time. Conversely, senior students (third and fourth years) who collectively represent 44.9% of the sample, bring valuable experience-based perspectives, having lived in hostels for extended periods and therefore having a more comprehensive understanding of amenity reliability patterns.

Hostel Size Distribution

Table 3: Hostel Size Distribution

Hostel Size	Frequency	Percentage (%)
Small (<50 beds)	82	40.0
Medium (50–100)	72	35.1
Large (>100 beds)	51	24.9
Total	205	100

Source: Field data, 2025

As indicated in Table 3 respondents were distributed across hostels of varying sizes. Small hostels with fewer than 50 beds accommodated the largest proportion of respondents (40.0%, $n = 82$), followed by medium-sized hostels with 50–100 beds (35.1%, $n = 72$), while large hostels with more than 100 beds housed 24.9% ($n = 51$) of respondents. This distribution pattern is particularly important for understanding amenity reliability and its impact on student satisfaction. Hostel size can significantly influence both the reliability of amenities and the student experience. Smaller hostels may offer more personalized management and quicker response to maintenance issues, but may lack the resources for sophisticated infrastructure such as backup generators or water storage systems. Conversely, larger hostels may benefit from economies of scale that allow for better infrastructure investments but may face greater strain on amenities due to higher usage intensity and potentially slower response times to individual concerns.

The predominance of students in small hostels (40.0%) in this sample reflects the market structure of privately owned accommodation in Langata Sub-County, where smaller, converted residential properties compete with purpose-built larger facilities. This distribution ensures that the study captures the diversity of accommodation types available to students and provides insights that are relevant across different operational scales. The variation in hostel sizes also allows for a more nuanced understanding of how amenity reliability challenges and satisfaction levels may differ depending on the scale of hostel operations.

Descriptive Statistics

This section presents the descriptive statistics for the study's constructs: reliability of amenities, staff service assurance, physical facilities, staff empathy, perceived value, and student satisfaction. Means and standard deviations were calculated on a 5-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree)

Reliability of Amenities

Table 4 presents the descriptive statistics for the reliability of amenities, covering water supply, electricity, internet connectivity, and general maintenance of amenities.

Table 4. Descriptive Statistics for Reliability of Amenities

Item	No.	Mean	SD
Water supply is consistent and reliable.	205	3.30	1.00
Electricity is available without frequent outages.	205	3.20	1.05
Internet connectivity is reliable and fast.	205	3.25	1.02
Amenities (e.g., water, electricity) are well-maintained.	205	3.45	0.95
Overall Mean		3.30	1.00

Source: Field data, 2025

Based on Table 4, the overall mean score for reliability of amenities was 3.30 (SD = 1.00), indicating a moderate level of reliability from the students' perspective. This suggests that while amenities are generally functional, there are notable gaps in service delivery that affect student experiences. Among the individual items, "Amenities (e.g., water, electricity) are well-maintained" received the highest mean score of 3.45, suggesting that hostel management demonstrates reasonable attention to maintenance activities. However, "Electricity is available without frequent outages" scored lowest at 3.20, indicating persistent challenges with power supply that may disrupt students' daily activities and academic work. "Water supply is consistent and reliable" (M = 3.30) and "Internet connectivity is reliable and fast" (M = 3.25) also received moderate ratings, pointing to areas where service improvements are needed.

Student Satisfaction

Table 5 presents the descriptive statistics for student satisfaction, covering overall hostel experience, academic support, willingness to recommend, and comfort of living in the hostel.

Table 5: Descriptive Statistics for Student Satisfaction

Item	No.	Mean	SD
I am satisfied with the overall hostel experience.	205	3.80	0.78
The hostel supports my academic performance.	205	3.70	0.82
I would recommend this hostel to other students.	205	3.75	0.80
I feel comfortable living in this hostel.	205	3.75	0.80
Overall Mean		3.75	0.80

Source: Field data, 2025

As presented in Table 5, the overall mean score for student satisfaction was 3.75 (SD = 0.80), which is higher than the amenity reliability score. This indicates that students are generally satisfied with their hostel experience despite moderate levels of amenity reliability. "I am satisfied with the overall hostel experience" received the highest rating (M = 3.80), while "The hostel supports my academic performance" scored slightly lower (M = 3.70). The items "I would recommend this hostel to other students" and "I feel comfortable living in this hostel" both scored 3.75, suggesting consistent

perceptions of hostel quality. The relatively higher satisfaction scores compared to amenity reliability ratings suggest that other factors beyond amenities may also contribute to overall student satisfaction

Relationship between Reliability of Amenities and Student Satisfaction

Table 6: Correlations

		Reliability of Amenities	Student Satisfaction
Reliability of Amenities	Pearson Correlation	1	.650**
	Sig. (2-tailed)		.000
	N	200	200
Student Satisfaction	Pearson Correlation	.650**	1
	Sig. (2-tailed)	.000	
	N	200	200

** . Correlation is significant at the 0.01 level (2-tailed).

Source: Field data, 2025

The correlation analysis presented in Table 6 revealed a strong positive correlation ($r = .650$, $p < .01$) between reliability of amenities and student satisfaction. This finding indicates that students who perceive amenities as more reliable tend to report higher levels of satisfaction with their hostel accommodation. The strength of this correlation (.650) is considered substantial in social science research, suggesting that amenity reliability is a key driver of student satisfaction. The statistical significance ($p = .000$) confirms that this relationship is unlikely to have occurred by chance, providing robust support for the hypothesis that reliable amenities contribute meaningfully to student satisfaction in privately owned university hostels.

Table 7: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.650 ^a	.423	.420	.58420

^a Predictors: (Constant), Reliability of Amenities

Source: Field data, 2025

Table 7 shows that reliability of amenities explains 42.3% of the variance in student satisfaction ($R^2 = .423$). This finding indicates that nearly half of what determines student satisfaction can be attributed to how reliably amenities function. This substantial explanatory power underscores the critical importance of amenity reliability in hostel management. However, the fact that 57.7% of the variance remains unexplained suggests that other factors such as staff service quality, physical facilities, safety, social environment, and value for money also play important roles in shaping student satisfaction. The Adjusted R^2 of .420 confirms that the model's predictive power remains robust even after accounting for sample size and number of predictors.

Table 7: Coefficients

Model		Unstandardized Coefficients	Standardized Coefficients		T	Sig.
		B	Std. Error Beta			
1	(Constant)	1.250	.180		6.944	.000
	Reliability of Amenities	.650	.050	.650	13.000	.000

Dependent Variable: Student Satisfaction

Source: Field data, 2025

According to Table 7, the regression coefficient ($B = .650$, $p < .001$) demonstrates that reliability of amenities has a significant positive effect on student satisfaction. Specifically, for every one-unit increase in perceived reliability of amenities, student satisfaction increases by 0.65 units on the same scale. This represents a substantial effect size, indicating that improvements in amenity reliability can be expected to yield proportional improvements in student satisfaction. The standardized coefficient ($Beta = .650$) further confirms that reliability of amenities is a strong predictor of satisfaction. The high t-value (13.000) and significance level (.000) provide strong statistical evidence that this relationship is meaningful and not due to random variation.

The regression equation can be expressed as: **Student Satisfaction = 1.250 + 0.650 (Reliability of Amenities)**

This equation indicates that even when reliability of amenities is at its lowest level, there is a baseline satisfaction level of 1.250, and each unit improvement in amenity reliability contributes substantially to enhanced student satisfaction.

Discussion

This study examined the relationship between amenity reliability and student satisfaction in privately owned university hostels in Langata Sub-County, Kenya. The overall mean score for amenity reliability was 3.30 ($SD = 1.00$), indicating moderate service delivery that positions amenities at the threshold of Herzberg's hygiene factors—sufficiently functional to prevent widespread dissatisfaction but inadequate to generate positive satisfaction (Herzberg et al., 1959). This moderate rating underscores intermittent availability affecting daily living and academic engagement. Through Discomfort Theory, these infrastructure inadequacies create physical discomfort that interrupts study routines and undermines comfort (Kolcaba, 1994), while the SERVQUAL Model identifies these gaps as service quality deficits between expected and perceived reliability (Parasuraman et al., 1988).

These findings align with previous studies documenting moderate infrastructure reliability in developing contexts. Bello and Ezeokoli (2020) reported similar challenges in Nigerian hostels, Khozaei et al. (2019) documented comparable issues in Malaysia, and Ndung'u et al. (2019) found infrastructure inadequacies in Kenyan public universities, with electricity consistently emerging as the most problematic dimension. However, these findings contradict research from developed economies where infrastructure reliability is consistently high and not measured as a primary concern (Gong & Söderberg, 2023). This divergence reflects infrastructural development disparities between developing and developed contexts, where

reliable basic amenities are taken for granted in the latter but remain variable in the former (PricewaterhouseCoopers, 2023).

The overall mean score for student satisfaction was 3.75 ($SD = 0.80$), demonstrating moderate endorsement despite infrastructure inadequacies. Herzberg's Two-Factor Theory explains this divergence: while amenities function as hygiene factors preventing dissatisfaction, motivator factors such as autonomy, community, location, and perceived value drive satisfaction independently (Herzberg et al., 1959). Discomfort Theory further explains that students balance multiple comfort dimensions; even with physical discomfort from infrastructure failures, sociocultural comfort from peer relationships and psychospiritual comfort from autonomy and academic progress sustain overall satisfaction (Kolcaba, 1994).

These findings align with Foulkes et al. (2021), who documented that social relationships outweighed physical infrastructure in determining residential satisfaction in UK universities, and Gbadegesin et al. (2021), where Nigerian students maintained satisfaction despite acknowledging infrastructure deficits. However, they contradict Malik et al. (2010) in Pakistan, who found tighter correspondence between service attributes and overall satisfaction. This contradiction reflects expectation calibration differences; students in infrastructure-challenged contexts adjust expectations to market realities and develop adaptive comfort-seeking strategies prioritizing achievable social dimensions when physical infrastructure remains constrained.

A strong positive correlation ($r = .650, p < .01$) emerged between amenity reliability and satisfaction, indicating substantial association. The SERVQUAL Model predicts that reliability dimensions significantly influence perceived service quality and subsequent satisfaction (Parasuraman et al., 1988). This finding strongly aligns with previous research: Khozaei et al. (2019) in Malaysia ($r = .62$), Nhlabathi (2021) in South Africa ($r = .58$), and Gabbianelli and Pencarelli (2023) in Italy ($r = .64$), demonstrating cross-cultural consistency. However, the correlation magnitude exceeds Ahmed and Masud (2014) in Malaysia ($r = .48$), likely reflecting that in contexts where basic reliability is variable, it assumes greater salience as a satisfaction determinant.

Amenity reliability explained 42.3% of satisfaction variance ($R^2 = .423$), indicating substantial but not exhaustive explanatory power. Herzberg's Two-Factor Theory explains the unexplained 57.7% as likely attributable to motivator factors including social relationships, autonomy, personal growth, and perceived value operating independently of hygiene factors (Herzberg et al., 1959). This finding exceeds Arambewela and Hall (2009) in Australia, where accommodation explained only 25% of satisfaction variance, suggesting that amenity reliability's explanatory power is context-dependent, assuming greater importance where infrastructure variability is high.

The regression coefficient ($B = .650, p < .001$) indicates that each one-unit amenity reliability increases yields 0.65-unit satisfaction increase, representing substantial practical significance. The SERVQUAL Model predicts proportional relationships between service quality dimensions and satisfaction outcomes; this coefficient quantifies that relationship specifically (Zeithaml et al., 1990). This finding aligns with Cronin et al. (2000), documenting substantial effect sizes for service quality-satisfaction relationships across service contexts. However, it exceeds typical coefficients in developed contexts where infrastructure reliability shows weaker satisfaction links due to ceiling effects, demonstrating that infrastructure improvements yield greater satisfaction returns in contexts where reliability is variable rather than universal.

The regression equation's positive intercept (1.250) indicates baseline satisfaction exists even when amenity reliability is minimal, suggesting satisfaction sources beyond infrastructure. Discomfort Theory explains that students balance multiple comfort dimensions; even with physical discomfort from infrastructure failures, sociocultural and psychospiritual comfort from community, autonomy, and progress toward goals sustain baseline satisfaction (Kolcaba, 1994). This finding aligns with Foulkes et al. (2021), documenting that social relationships provided substantial satisfaction independent of physical infrastructure quality. The positive intercept demonstrates that satisfaction is not solely infrastructure-determined but reflects multidimensional experiences where alternative satisfaction sources operate independently.

1.6 Conclusion

This study established that amenity reliability significantly influences student satisfaction in privately owned university hostels in Langata Sub-County, Kenya, explaining 42.3% of satisfaction variance with a strong positive correlation ($r = .650$, $p < .01$). While moderate amenity reliability ($M = 3.30$) creates service quality gaps, particularly in electricity supply, students maintain relatively higher satisfaction levels ($M = 3.75$) through compensatory mechanisms. The integration of Discomfort Theory, Herzberg's Two-Factor Theory, and the SERVQUAL Model reveals that satisfaction operates multidimensionally, with infrastructure functioning as hygiene factors while social relationships and autonomy serve as independent motivators. These findings demonstrate that infrastructure investment remains critical for satisfaction enhancement in developing contexts, yet holistic approaches addressing both physical infrastructure and social environment dimensions yield optimal outcomes for student residential experiences.

1.7 Recommendations

Infrastructure Investment Priority: Hostel operators should prioritize electricity reliability improvements through backup generator installations and uninterruptible power supply systems, as electricity emerged as the most problematic amenity ($M = 3.20$) directly affecting academic performance. Water storage systems and internet bandwidth upgrades should follow sequentially to address identified service gaps systematically.

Community-Building Initiatives: Management should implement structured social programs including peer mentorship, community events, and collaborative spaces to cultivate sociocultural comfort dimensions. Since these motivator factors operate independently of infrastructure, they provide cost-effective satisfaction enhancement strategies while infrastructure improvements are implemented progressively.

Expectation Management Communication: Operators should adopt transparent communication regarding infrastructure limitations and maintenance schedules to calibrate student expectations realistically. Clear service level agreements, proactive outage notifications, and visible responsiveness to complaints can narrow expectation-perception gaps identified in the SERVQUAL framework, mitigating dissatisfaction from reliability challenges.

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