Service Quality and Client Retention at Lubaga Hospital, Uganda: Interpreting Bivariate Significance and Multivariable Attenuation

Nannyondo Grace[1]*, J.M.O. Tukei[2]

Lubaga Hospital, Uganda[1]

Police Health Services[2]

DOI: https://doi.org/10.47772/IJRISS.2026.101100168

Received: 14 October 2026; Accepted: 19 October 2026; Published: 21 November 2026

ABSTRACT

Patients rarely describe "service quality" as an abstract construct; they remember whether care was reliable, responsive, empathetic and worth the effort of returning. A hospital can therefore score highly on perceived quality yet still discover that quality shares explanatory space with customer care and relationship experience. The managerial challenge is to understand not only whether quality matters, but how its effect survives when neighbouring determinants are considered simultaneously. This article examines service quality and client retention at Lubaga Hospital using data extracted from the parent mixed-methods study. Methodologically, 107 usable questionnaires and 24 completed interviews informed descriptive, correlational, regression and qualitative analyses. Service quality recorded a mean of 4.09 (SD = .59 in the correlation table), and its bivariate association with retention was positive and statistically significant ($r = .256$, $p = .008$). However, in the joint regression model the coefficient remained positive but fell short of the .05 threshold ($B = .200$, $\beta = .182$, $p = .062$). This apparent tension is analytically important: it suggests that service quality matters, but part of its association with retention overlaps with customer care and related experience variables. The article therefore distinguishes gross association from independent contribution and cross-references Article 1 and Article 3 to build an integrated retention model.

Keywords: service quality; client retention; SERVPERF; patient experience; healthcare management; Uganda

INTRODUCTION

Service quality is central to healthcare retention because the patient judges both technical and experiential aspects of care under conditions of vulnerability and information asymmetry. Reliability, responsiveness, empathy, physical facilities, staff presentation and confidence in equipment can therefore influence willingness to return, but their effects are mediated by satisfaction, trust, perceived value and the quality of interpersonal encounters. Healthcare and service-management studies consistently associate perceived service quality with satisfaction and loyalty, while also showing that these constructs overlap conceptually and empirically (Aburayya et al., 2020; Akdere et al., 2020; Amporfro et al., 2021; Han & Hyun, 2015; Higenyi, 2020; Venetis & Ghauri, 2004) (Abekah-Nkrumah et al., 2021; Alam et al., 2021; Han & Hyun, 2015; Kwiatek et al., 2020; Payne & Frow, 2016; Vaniara & Pramono, 2022).

At Lubaga Hospital, the service-quality question is especially relevant because respondents evaluated medical equipment, physical facilities, employee appearance and right-first-time performance positively, with a global descriptive mean of approximately 4.09. Yet the correct analytical question is not whether the mean is high; it is whether variation in perceived quality explains variation in retention. This article therefore differentiates descriptive approval, bivariate association and adjusted predictive contribution, a distinction that strengthens interpretation of the parent dissertation and avoids equating favourable perceptions with causal impact (Aburayya et al., 2020; Akdere et al., 2020; Amporfro et al., 2021; Han & Hyun, 2015; Higenyi, 2020; Venetis & Ghauri, 2004) (Krejcie & Morgan, 1970; Roberts & Priest, 2006; Wang & Cheng, 2020; Amporfro et al., 2021; Akdere et al., 2020).

THEORETICAL AND EMPIRICAL FRAMING

Service quality in healthcare can be conceptualised as the patient's evaluation of how consistently the organisation delivers expected performance across tangible, reliable, responsive and relational dimensions. The hospital context makes this multidimensionality especially important: modern equipment can signal capability, but equipment alone does not ensure a trustworthy encounter; right-first-time performance can reduce anxiety, but patients also interpret communication, empathy and waiting time as evidence about organisational quality. The literature therefore supports a systems interpretation in which technical, physical and relational cues jointly shape satisfaction and loyalty (Aburayya et al., 2020; Akdere et al., 2020; Amporfro et al., 2021; Han & Hyun, 2015; Higenyi, 2020; Venetis & Ghauri, 2004) (Abekah-Nkrumah et al., 2021; Gudergan et al., 2008; Koca & Erigüç, 2020; Mangus et al., 2020; Spicuzza, 1992; Torres & Zhang, 2022).

The retention pathway is consequently indirect as well as direct. Higher service quality can increase perceived value and satisfaction, satisfaction can strengthen trust and intention to return, and repeated satisfactory encounters can become attitudinal loyalty. However, once customer care is entered into the same model, part of what patients call "quality" may be statistically shared with responsiveness, communication or empathy. The attenuation observed in the Lubaga regression is therefore theoretically plausible rather than contradictory (Abekah-Nkrumah et al., 2021; Alam et al., 2021; Han & Hyun, 2015; Kwiatek et al., 2020; Payne & Frow, 2016; Vaniara & Pramono, 2022) (Aburayya et al., 2020; Akdere et al., 2020; Amporfro et al., 2021; Han & Hyun, 2015; Higenyi, 2020; Venetis & Ghauri, 2004).

Table 1. Service-quality dimensions and proposed retention mechanisms

Service-quality dimension	Observed/indicative measure	Retention mechanism	Related construct
Tangibles	Medical equipment; physical facilities; employee appearance	Signals capability, order and confidence	Perceived value
Reliability	Performing service right the first time	Reduces error, rework and uncertainty	Trust
Responsiveness	Prompt attention and reduced service delay	Lowers patient effort and frustration	Customer care
Empathy	Individualised attention and understanding	Strengthens emotional security	Relationship quality

METHODOLOGY

The study used a cross-sectional mixed-methods design at Lubaga Hospital. The quantitative component consisted of 107 usable questionnaires from 148 distributed, while the qualitative component included 24 completed interviews from 32 planned. Five-point Likert-type measures were analysed using descriptive statistics, Pearson correlation and multiple regression. The qualitative strand provided contextual explanation for how patients interpreted equipment, facilities, professional conduct, communication and personalised care. Because exposure and outcome were measured in the same study period, the results are interpreted as associations rather than temporal causal effects (Krejcie & Morgan, 1970; Roberts & Priest, 2006; Wang & Cheng, 2020; Amporfro et al., 2021; Akdere et al., 2020).

For this article, the statistical hierarchy is explicit. First, Table 2 reports item-level descriptive evidence to establish the pattern of perceived quality. Second, Table 3 reports the bivariate relationship with retention. Third, Table 4 places service quality in the multivariable model alongside loyalty programmes and customer care. This sequence prevents two common interpretation errors: treating a high mean as proof of effect, and treating a significant bivariate correlation as proof of an independent effect after correlated predictors are controlled (Krejcie & Morgan, 1970; Roberts & Priest, 2006; Wang & Cheng, 2020; Amporfro et al., 2021; Akdere et al.,

2020) (Aburayya et al., 2020; Akdere et al., 2020; Amporfro et al., 2021; Han & Hyun, 2015; Higenyi, 2020; Venetis & Ghauri, 2004).

RESULTS

Table 2. Descriptive assessment of service-quality indicators

Service-quality statement	Mean	SD	Interpretation
Quality of medical equipment attracts new customers	4.18	1.06	Agree
Quality of medical equipment influences retention	4.28	0.89	Agree
Appearance of physical facilities attracts customers	3.93	1.22	Agree
Appearance of employees attracts customers	4.00	1.12	Agree
Appearance of employees influences retention	4.02	1.08	Agree
Performing service right the first time attracts customers	4.15	1.05	Agree
Performing service right the first-time influences retention	4.08	1.05	Agree
Global mean	4.09	1.07	Agree

Table 3. Bivariate association between service quality and client retention

Variable	Mean	SD	r with retention	p	Interpretation
Service quality	4.0908	.58685	.256	.008	Positive and statistically significant
Customer retention	4.0327	.64364	1.000	—	Outcome variable

Table 4. Multivariable coefficients predicting customer retention

Predictor	B	SE	β	t	p
Loyalty programmes	.083	.063	.124	1.332	.186
Service quality	.200	.106	.182	1.884	.062
Customer care	.231	.095	.237	2.439	.016

The results reveal a two-stage pattern. At the bivariate level, service quality and retention moved together positively ($r = .256$, $p = .008$), providing evidence against the null hypothesis of no zero-order association. In the multivariable model, however, the service-quality coefficient remained positive ($B = .200$; $\beta = .182$) but the p-value increased to .062, just above the conventional .05 threshold. Thus, the data support a positive gross relationship but do not provide equally strong evidence of an independent contribution once loyalty programmes and customer care are modelled simultaneously. Similar overlaps among quality, satisfaction, trust and loyalty are widely reported in service and healthcare research (Aburayya et al., 2020; Akdere et al., 2020; Amporfro et al., 2021; Han & Hyun, 2015; Higenyi, 2020; Venetis & Ghauri, 2004) (Abekah-Nkrumah et al., 2021; Alam et al., 2021; Han & Hyun, 2015; Kwiatek et al., 2020; Payne & Frow, 2016; Vaniara & Pramono, 2022).

ANALYTICAL DISCUSSION

5.1 The meaning of the significant bivariate relationship

The bivariate result is substantively credible because service-quality indicators represent cues that patients can directly translate into confidence and reduced perceived risk. High-quality equipment can signal diagnostic and treatment capacity; reliable execution can reduce anxiety about errors; well-maintained facilities can communicate organisational discipline; and professional presentation can shape first impressions. The pattern in

Table 2 therefore provides a plausible experiential foundation for the correlation in Table 3, consistent with evidence that perceived quality contributes to satisfaction, trust and repurchase or revisit intention (Aburayya et al., 2020; Akdere et al., 2020; Amporfro et al., 2021; Han & Hyun, 2015; Higenyi, 2020; Venetis & Ghauri, 2004) (Abekah-Nkrumah et al., 2021; Alam et al., 2021; Han & Hyun, 2015; Kwiatek et al., 2020; Payne & Frow, 2016; Vaniara & Pramono, 2022).

5.2 Why significance attenuated in the joint model

The movement from p = .008 in the correlation to p = .062 in the regression should not be described as a contradiction. Correlation estimates the total zero-order association between two variables; regression estimates the unique contribution of service quality after accounting for the variance it shares with the other predictors. Because customer care contains responsiveness, time, communication and interpersonal experience, it is conceptually adjacent to perceived service quality. Some of the effect that appears to belong to service quality in isolation may therefore be jointly carried by customer care when all predictors are entered together (Aburayya et al., 2020; Akdere et al., 2020; Amporfro et al., 2021; Han & Hyun, 2015; Higenyi, 2020; Venetis & Ghauri, 2004) (Abekah-Nkrumah et al., 2021; Gudergan et al., 2008; Koca & Erigüç, 2020; Mangus et al., 2020; Spicuzza, 1992; Torres & Zhang, 2022).

This finding also clarifies the relationship among the three extracted articles. Article 1 shows that loyalty programmes were weakly related to retention; Article 3 shows that customer care remained statistically significant in the adjusted model. Article 2 sits between these findings: service quality has meaningful bivariate explanatory value, but its independent coefficient is less precise after adjustment. The combined evidence favours an integrated patient-experience model in which quality infrastructure, reliable processes and relational care operate as interdependent rather than competing managerial levers (Aburayya et al., 2020; Akdere et al., 2020; Amporfro et al., 2021; Han & Hyun, 2015; Higenyi, 2020; Venetis & Ghauri, 2004) (Abekah-Nkrumah et al., 2021; Gudergan et al., 2008; Koca & Erigüç, 2020; Mangus et al., 2020; Spicuzza, 1992; Torres & Zhang, 2022) (Abekah-Nkrumah et al., 2021; Alam et al., 2021; Han & Hyun, 2015; Kwiatek et al., 2020; Payne & Frow, 2016; Vaniara & Pramono, 2022).

MANAGEMENT IMPLICATIONS

Management should therefore avoid a narrow capital-investment interpretation of quality. Medical equipment and physical facilities matter, but the strongest retention architecture links those assets to reliable process execution, reduced waiting, empathetic communication, effective complaint response and continuity across patient touchpoints. Quality-improvement programmes should use patient journey mapping so that technical capability and human interaction are audited together; otherwise, investments can improve visible infrastructure while leaving the experiential bottlenecks that drive defection unresolved (Aburayya et al., 2020; Akdere et al., 2020; Amporfro et al., 2021; Han & Hyun, 2015; Higenyi, 2020; Venetis & Ghauri, 2004) (Abekah-Nkrumah et al., 2021; Gudergan et al., 2008; Koca & Erigüç, 2020; Mangus et al., 2020; Spicuzza, 1992; Torres & Zhang, 2022).

A practical dashboard should distinguish structural quality (equipment and facilities), process quality (right-first-time service, responsiveness, waiting time and coordination) and relational quality (empathy, explanation and trust). Retention should then be tracked by patient segment and service line, ideally using repeat-visit behaviour rather than intention alone. Such a system would allow managers to identify whether service-quality improvement produces retention directly, through customer care, or through satisfaction and trust, and it would permit the hypotheses suggested by Figure 1 to be tested longitudinally (Aburayya et al., 2020; Akdere et al., 2020; Amporfro et al., 2021; Han & Hyun, 2015; Higenyi, 2020; Venetis & Ghauri, 2004) (Abekah-Nkrumah et al., 2021; Alam et al., 2021; Han & Hyun, 2015; Kwiatek et al., 2020; Payne & Frow, 2016; Vaniara & Pramono, 2022).

LIMITATIONS AND FUTURE RESEARCH

The cross-sectional single-hospital design cannot establish causal direction, and the regression model does not include every plausible determinant of retention, such as clinical outcome, price reasonableness, insurance arrangements, location, waiting time or physician continuity. Future work should estimate mediation and longitudinal models, test discriminant validity between service quality and customer care, and compare PNFP hospitals with private-for-profit and public facilities. This would clarify whether the attenuation observed in Table 4 reflects genuine shared mechanisms, measurement overlap or limited statistical power (Krejcie & Morgan, 1970; Roberts & Priest, 2006; Wang & Cheng, 2020; Amporfro et al., 2021; Akdere et al., 2020) (Aburayya et al., 2020; Akdere et al., 2020; Amporfro et al., 2021; Han & Hyun, 2015; Higenyi, 2020; Venetis & Ghauri, 2004).

CONCLUSION

Service quality at Lubaga Hospital was positively and significantly associated with client retention at the bivariate level, but its adjusted coefficient did not meet the .05 threshold when loyalty programmes and customer care were considered simultaneously. The professional interpretation is therefore nuanced: service quality matters, but much of its retention value may be realised through overlapping experiential pathways. For management, the implication is to integrate technical quality, process reliability and relational care rather than searching for a single isolated predictor (Aburayya et al., 2020; Akdere et al., 2020; Amporfro et al., 2021; Han & Hyun, 2015; Higenyi, 2020; Venetis & Ghauri, 2004) (Abekah-Nkrumah et al., 2021; Gudergan et al., 2008; Koca & Erigüç, 2020; Mangus et al., 2020; Spicuzza, 1992; Torres & Zhang, 2022) (Abekah-Nkrumah et al., 2021; Alam et al., 2021; Han & Hyun, 2015; Kwiatek et al., 2020; Payne & Frow, 2016; Vaniara & Pramono, 2022).

RECOMMENDATIONS

The findings of this article established a positive and statistically significant bivariate relationship between service quality and client retention ($r = .256$, $p = .008$). However, the effect of service quality became weaker after loyalty programmes and customer care were considered simultaneously in the multivariable model ($\beta = .182$, $p = .062$). This pattern suggests that service quality remains important to retention, but its influence is interconnected with other dimensions of the patient experience, particularly customer care. The recommendations therefore emphasise integrated improvement rather than isolated quality interventions.

First, Lubaga Hospital should institutionalise a patient-centred service-quality improvement framework focusing particularly on reliability, responsiveness, empathy, value for money and consistency of care. The significant bivariate relationship indicates that patients who perceive higher service quality are more likely to express an intention to return. Improvement programmes should therefore ensure that quality is experienced consistently from registration and consultation to investigations, treatment, billing and discharge.

Second, management should pay particular attention to service reliability and clinical consistency. Patients should receive services according to clearly communicated standards, including predictable operating hours, availability of essential services, accurate information, dependable laboratory and pharmacy systems and continuity of clinical decision-making. Reliability strengthens confidence that patients will receive comparable standards of care during subsequent visits.

Third, the hospital should strengthen responsiveness and waiting-time management. Patient flow should be mapped across reception, triage, consultation, diagnostics, pharmacy and billing to identify recurrent bottlenecks. Electronic queue-management systems, appointment scheduling, staffing according to peak demand and improved coordination between departments should be considered. Reducing unnecessary delays may strengthen the practical value patients attach to the hospital and thereby support retention.

Fourth, service-quality improvement should incorporate continuous professional development in empathy, communication and patient-centred care. Technical competence alone may not translate into perceived quality

when patients experience inadequate explanation, indifference or poor interpersonal interaction. Training should therefore combine clinical-quality standards with communication, empathy, cultural sensitivity, complaint management and shared decision-making.

Fifth, management should establish a structured patient-experience and quality-feedback system. Patient satisfaction surveys, discharge interviews, suggestion channels, complaint analysis and periodic service audits should be used to identify emerging weaknesses. Feedback should be disaggregated by department and service point so that corrective action can be directed toward specific quality gaps rather than treated as a general institutional problem.

Sixth, Lubaga Hospital should improve transparency regarding cost, value for money and treatment expectations. In PNFP healthcare settings, patients may evaluate quality partly through the relationship between cost, accessibility, communication and perceived benefit. Clear information on charges, anticipated investigations and alternative treatment options can reduce dissatisfaction arising from unexpected expenditure and may strengthen trust.

Seventh, service-quality indicators should be incorporated into departmental performance management. These should include waiting time, complaint-resolution time, service availability, patient-reported experience, continuity of care, repeat utilisation and adherence to clinical and administrative standards. Management should review these indicators regularly and link identified gaps to specific improvement plans.

The attenuation of the service-quality effect in the multivariable model further suggests that management should avoid treating quality, loyalty and customer care as separate organisational programmes. As demonstrated by the findings of Articles 1 and 3, patient retention appears to arise from a combination of clinical, relational and organisational experiences. Accordingly, Lubaga Hospital should adopt an integrated patient-retention strategy in which service quality provides the technical foundation while customer care provides the relational pathway through which quality is perceived and valued.

Finally, future research should explore which individual dimensions of service quality contribute most strongly to actual return behaviour and whether customer care mediates or moderates the relationship between service quality and retention. Longitudinal studies incorporating objective utilisation records would provide stronger evidence regarding whether improvements in perceived quality translate into sustained patient retention.

REFERENCES

1. Abekah-Nkrumah, G., Antwi, M. Y., Braimah, S. M., & Ofori, C. G. (2021). Customer relationship management and patient satisfaction and loyalty in selected hospitals in Ghana. International Journal of Pharmaceutical and Healthcare Marketing, 15(2), 251–268.
2. Aburayya, A., Marzouqi, A., Alawadhi, D., Abdouli, F., & Taryam, M. (2020). An empirical investigation of the effect of employees' customer orientation on customer loyalty through the mediating role of customer satisfaction and service quality. Management Science Letters, 10(10), 2147–2158.
3. Akdere, M., Top, M., & Tekingündüz, S. (2020). Examining patient perceptions of service quality in Turkish hospitals: The SERVPERF model. Total Quality Management & Business Excellence, 31(3–4), 342–352.
4. Alam, M. M. D., Karim, R. A., & Habiba, W. (2021). The relationship between CRM and customer loyalty: The moderating role of customer trust. International Journal of Bank Marketing, 39(7), 1248–1272.
5. Amporfro, D. A., Boah, M., Yingqi, S., Wabo, T. M. C., Zhao, M., Nkondjock, V. R. N., & Wu, Q. (2021). Patients' satisfaction with healthcare delivery in Ghana. BMC Health Services Research, 21, 1–13.
6. Gudergan, S., Beatson, A., & Lings, I. (2008). Managing service staff as an organizational resource: Implications for customer service provision. Services Marketing Quarterly, 29(4), 25–41.
7. Han, H., & Hyun, S. S. (2015). Customer retention in the medical tourism industry: Impact of quality, satisfaction, trust, and price reasonableness. Tourism Management, 46, 20–29.

8. Higenyi, E. (2020). Factors influencing client satisfaction with hospital services at St. Stephens Hospital Mpererwe Private Not for Profit General Hospital in Uganda. Texila International Journal of Public Health, 8(3), 1–5.
9. Koca, G. Ş., & Erigüç, G. (2020). The effects of communication skills levels of health professionals on the dimensions of the Johari Window model. International Journal of Healthcare Management, 13(sup1), 434–446.
10. Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. Educational and Psychological Measurement, 30(3), 607–610.
11. Kwiatek, P., Morgan, Z., & Thanasi-Boçe, M. (2020). The role of relationship quality and loyalty programs in building customer loyalty. Journal of Business & Industrial Marketing, 35(11), 1645–1657.
12. Lenka, U., Suar, D., & Mohapatra, P. K. J. (2009). Service quality, customer satisfaction, and customer loyalty in Indian commercial banks. The Journal of Entrepreneurship, 18(1), 47–64.
13. Mangus, S. M., Bock, D. E., Jones, E., & Folse, J. A. G. (2020). Examining the effects of mutual information sharing and relationship empathy: A social penetration theory perspective. Journal of Business Research, 109, 375–384.
14. Pakurár, M., Haddad, H., Nagy, J., Popp, J., & Oláh, J. (2019). The service quality dimensions that affect customer satisfaction in the Jordanian banking sector. Sustainability, 11(4), 1113.
15. Payne, A., & Frow, P. (2016). Customer relationship management: Strategy and implementation. In M. J. Baker & S. Hart (Eds.), The marketing book (pp. 439–466). Routledge.
16. Roberts, P., & Priest, H. (2006). Reliability and validity in research. Nursing Standard, 20(44), 41–46.
17. Torres, E. N., & Zhang, T. (2022). Customer service marketing: Managing the customer experience. Routledge.
18. Vaniara, F. V., & Pramono, R. (2022). The effect of perceived value, customer satisfaction and trust on customer loyalty at the DM Clinic in East Jakarta. International Journal of Economics, Business and Accounting Research, 6(3), 2514–2519.
19. Venetis, K. A., & Ghauri, P. N. (2004). Service quality and customer retention: Building long-term relationships. European Journal of Marketing, 38(11/12), 1577–1598.
20. Wang, X., & Cheng, Z. (2020). Cross-sectional studies: Strengths, weaknesses, and recommendations. Chest, 158(1), S65–S71.