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ORIGINAL ARTICLE

PREDICTORS OF QUALITY OF CARE AMONG LOSS TO FOLLOW-UP ADULTS RETURNING TO HIV CARE IN NIGERIA

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ABSTRACT

Background : Loss to Follow-Up (LTFU) remains a major challenge for HIV programmes in sub-Saharan Africa, affecting treatment continuity and health outcomes. Although clinical and structural determinants of retention have been widely studied, limited evidence exists on how defaulted HIV adult patients returning to care perceive the quality of care (QoC) previously received. This study examined predictors of perceived QoC among HIV positive adults returning to HIV treatment in Nigeria after LTFU.

Methods: A secondary analysis was performed on a 2017 cross-sectional survey involving 438 consenting adults who returned to HIV care after LTFU in Nigeria. Data on demographics, stigma, access barriers, healthcare worker (HCW) interactions, and service satisfaction were collected using a structured questionnaire adapted from the Satisfaction with HIV/AIDS Treatment Interview Scale (SATIS). Bivariate analysis and multivariable logistic regression were performed using SPSS version 20, with statistical significance set at $p < 0.05$.

Results: Out of the 438 study participants, 32.2% were diagnosed within 2 years of the study. Most participants (90%) reported good QoC before their most recent LTFU episode. Dissatisfaction with confidentiality, distrust in HCW competence, and poor ART counselling were associated with poor QoC. HCW friendliness (adjusted odds ratio [AOR]=42.04), satisfaction with ART counselling (AOR=141.45), and absence of prior stigma experiences (AOR=7.72) were associated with good QoC.

Conclusion: Healthcare workers and implementing partners in Nigeria and similar settings should strengthen provider–patient communication, improve respectful HIV service delivery, and reduce stigma within health facilities to support sustained retention of adults returning to HIV care after loss to follow-up.

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INTRODUCTION

Perceived quality of care (QoC) plays a critical role in shaping health-seeking behaviour, influencing patients' choice of service delivery points, utilization of health services, and long-term engagement in care. High-quality and person-centred health services promote trust, responsiveness, and positive patient experiences, which in turn influence healthcare utilization and continued engagement with care.¹⁻² In HIV programmes, perceived QoC has been associated with treatment adherence, patient satisfaction, and retention, particularly as HIV has transitioned into a chronic condition requiring lifelong care and sustained interaction with health systems.¹⁻³ Patient-centred dimensions of care, such as respectful provider attitudes, confidentiality, communication, waiting times, and responsiveness, are increasingly recognized as essential components of effective HIV service delivery.⁴⁻⁵

Despite substantial global progress in scaling up antiretroviral therapy (ART), loss to follow-up (LTFU) remains a major challenge in low- and middle-income countries (LMICs), especially in sub-Saharan Africa.⁶⁻⁸ Socio-structural factors, including stigma, poverty, mobility, and competing livelihood demands, frequently intersect with health system constraints such as fragmented service delivery, inadequate staffing, and weak patient-provider relationships, to undermine sustained engagement in HIV care.⁹⁻¹² Evidence from recent systematic reviews indicates that retention in HIV care beyond 24–36 months remains sub-optimal across many African settings, threatening progress toward epidemic control.^{7, 13}

Nigeria bears one of the largest HIV burdens globally and continues to face persistent retention challenges despite major investments in ART scale-up. National programme data and cohort studies consistently report substantial attrition among adults enrolled on ART, with LTFU rates exceeding 20% after the first year of treatment in several settings.¹⁴⁻¹⁶ These retention gaps have significant implications for achieving sustained viral suppression, reducing HIV-related morbidity and mortality, and preventing onward transmission.

Following the adoption of the World Health Organization's Test-and-Treat policy and alignment with UNAIDS 95-95-95 targets, Nigeria rapidly

expanded ART eligibility and enrolment.¹⁷⁻¹⁸ While these policy shifts have improved access to treatment, they have also increased pressure on already stretched health systems, heightening the importance of QoC in ensuring patient-centred, sustainable HIV service delivery.¹⁹ Achieving national and global targets, therefore, requires not only accelerated enrolment but also effective strategies to prevent cascade drop-offs and retain clients in long-term care.

To strengthen service delivery, Nigeria has implemented quality management initiatives such as the National HIV Quality of Care framework (NigeriaQual) and the PEPFAR Site Improvement through Monitoring Systems (SIMS), which primarily assess quality through compliance with clinical standards and programme indicators.²⁰ While these approaches are essential, they often under-represent patient experience. Growing evidence from Nigeria and other African countries suggests that patient satisfaction and perceived QoC are strongly associated with retention, adherence, and service acceptability, particularly among vulnerable and previously disengaged populations.²¹⁻²³

There is limited evidence regarding how defaulter adults returning to HIV care perceive the quality of care (QoC) they received previously before LTFU, or the factors influencing these perceptions.²⁴ HIV Adults returning to care after loss to follow-up (LTFU) constitute a particularly vulnerable population at increased risk of repeated interruption in care but may also be a viable opportunity for targeted patient-centred quality improvement interventions aimed at strengthening long-term retention and continuity of treatment.^{7,24-25} Therefore, understanding the perception of QoC amongst LTFU HIV adult patients is particularly relevant in the context of changing donor landscapes and resource constraints, which may further influence service delivery environments.²⁶

This study, therefore, examines the predictors of perceived quality of care among adults returning to HIV care after a prior LTFU period in Nigeria, using a patient satisfaction perspective. By centering the experiences of individuals who have re-engaged with care, this study aimed to generate context-specific evidence to inform patient-centred quality improvement strategies and strengthen retention within Nigeria's evolving HIV care continuum.

Table 1: Socio-Demographic Profile

Characteristics	Categories	n	%
Sex	Female	295	67.4
	Male	137	31.3
	Missing	6	1.4
Religion	Islam	137	31.3
	Christian	275	62.8
	Traditional/Other	10	2.3
	Missing	16	3.7
Relationship status	Married	289	66.0
	Divorced/ Separated	35	8.0
	Widowed	44	10.1
	Single	70	16.0
	None	4	0.9
Educational status of PLHIV	Primary	110	25.1
	Secondary	177	40.4
	Post-Secondary	120	27.4
	Missing	27	6.6
Educational Status of Partner of PLHIV	None	0	0.0
	Primary	91	20.8
	Secondary	140	32.0
	Post-Secondary	123	28.1
	Missing	41	9.4

METHODS

This was a secondary analysis of a cross-sectional survey conducted within 3 weeks between March and April 2017 in 99 PEPFAR-supported comprehensive ART clinics located in 10 of Nigeria's 36 states and the Federal Capital Territory from an electronic database used to identify previously enrolled Adult PLHIV(>15years) placed on Combination Antiretroviral Therapy (cART) who were LTFU. People living with HIV (PLHIV) were considered LTFU if absent from care for 90 days after a missed clinical appointment and/or pharmacy drug pick-up. The Institute of Human

Virology Nigeria (IHVN), a non-governmental organization supporting several Nigerian states to provide HIV services, collaborated with the Network of People Living with HIV/AIDS in Nigeria (NEPWHAN) to strengthen tracking and facilitate return to care among transiently LTFU clients.

A state-specific master list of presumed LTFU clients was generated from participating healthcare facilities and shared with NEPWHAN. State tracking teams subsequently used pre-consented contact information, including telephone numbers and home addresses, to trace clients, verify their status, and encourage their return to HIV care and

Table 2: Selected Variables and Perceived Quality of Care (QoC) Among Adults Returning to HIV Care in Nigeria

Socio-demographic Characteristics	Odds Ratio	p-value (Confidence interval)
Sex		
Male	Ref	
Female	0.58	0.108(0.30-1.13)
Age		
≥36 years	Ref	
≤35 years	0.88	0.701(0.46-1.70)
Access to care		
Easy	Ref	
Difficult	3.06	0.034(1.04-9.02)
Long waiting Time		
Agree	Ref	
Disagree	1.83	0.110 (0.86-3.86)
Privacy/Confidentiality		
Yes	Ref	
No	5.98	<0.001(2.97-12.03)
Stigma Experience		
No	Ref	
Yes	1.07	0.868(0.50-2.28)
Trust in HCW Competence		
Agree	Ref	
Disagree	0.884	0.960(0.483-1.998)
HCW Friendliness		
Agree	Ref	
Disagree	29.77	<0.001(9.49-50.26)
Satisfaction with ART Counselling		
Agree	Ref	
Disagree	127.50	<0.001(27.34-594.53)
Prior LTFU Episode		
Yes	Ref	
No	127.50	0.80(0.40-1.59)

treatment services. The details of the methodology and data collection are captured in a previous publication- “Social barriers in accessing care by clients who returned to HIV care after transient loss to follow-up”.²⁴

Data from 438 out of 562 defaulted returnee adult HIV patients who gave consent before enrolment

were utilized for this secondary analysis. Information was collected on healthcare worker (HCW) interactions, counselling, confidentiality, stigma, access-related experiences and satisfaction using an interviewer-administered questionnaire adapted from the Satisfaction with HIV/AIDs Treatment Interview scale (SATIS).²⁷

The dependent variable “How would you rate the overall quality of HIV/AIDS treatment services delivery you have received before LTFU?” had its 5-item Likert scale options- Excellent, Good, Fair, Bad, very bad collapsed into dichotomous categories with excellent and good assigned “1” and others assigned “0”. Frequencies were described, and bivariate associations between independent variables and overall perceived good quality of care (QoC) were explored using appropriate tests of proportions, with unadjusted odds ratios (ORs) estimated, while multivariate binomial logistic regression was used to ascertain the effects of several factors on the likelihood of returnee Adult PLHIV self-reporting an overall good QoC experience prior to LTFU.

Bivariate analysis and multivariable logistic regression were performed using SPSS version 20, with statistical significance set at $p < 0.05$. Missing data were handled using pairwise deletion for bivariate analyses and listwise deletion for multivariable logistic regression. As a result, sample sizes varied across bivariate analyses, while only participants with complete data for all variables included in the regression model were retained for multivariable analysis.

ETHICAL STATEMENT

The study was approved by the Nigerian National Health Research Ethics Committee as part of its approval of program evaluations for IHVN’s HIV services. The data reviewed and presented in this study were originally collected as part of routine HIV program activities. As routinely communicated in all HIV-program services, every PLHIV returnee was adequately informed of their right to decline in survey participation with assurances that no adversity to their continued care will occur. Secure, confidential data collection, entry, and analysis were carried out by individuals with the requisite ethical certification.

RESULTS

This was a secondary analysis of 78% (438 of 562) of returnee PLHIV enrolled in the study. The median age was 36 years (IQR:42.6-29.4, SD 9.8), 66% (289) were married, 67.4% (295) were female and 62.8% (275) were Christians. Most (32.2%) had their diagnosis within 2 years of study, with median times on ARV and co-trimoxazole prophylaxis of 2 (IQR:0.4-4.4, SD 3) and 3(IQR 1.3-5.5, SD 3) years, respectively.

Formal education was common among returnee PLHIV and their partners, with 67.8% (397) and 60.1% (263) having completed beyond primary school, respectively. Table 1.

Most returnee PLHIV:90% (361/401) reported good perceived quality of care (QoC) at the health facility prior to their most recent LTFU episode. Approximately 30% (126/425) reported a history of LTFU prior to the index event. Difficulty accessing the health facility was reported by 73.5% (216/294) of participants, with distance (33.8%; 73/216), transport costs (32.9%;71/216), time away from work or school (25.5%;55/216), and poor or unsafe roads (7.9%;17/216) cited as key barriers. Waiting Time was reported as inconvenient by approximately 18.8% (80/426) of respondents.

Concerns related to confidentiality and privacy were reported by 14.7% (63/429) of participants, while approximately 24.2% (103/426) reported having ever experienced stigma within a healthcare setting. Most respondents perceived their healthcare workers (HCWs) positively: 90.7% (391/431) described HCWs as friendly, 92.6% (400/432) trusted HCW competence and judgement, and 94.9% (410/432) reported that HCWs adequately explained their HIV status.

At the bivariate level, four variables were significantly associated with perceived QoC ($p < 0.001$): satisfaction with confidentiality and privacy, trust in HCW competence, HCW friendliness, and quality of counseling on ART use.

Participants who reported poor confidentiality and privacy had higher odds of reporting poor perceived QoC (OR 4.5; 95% CI 2.6–7.9). Similarly, participants expressing distrust in HCW competence and judgement had increased odds of reporting poor QoC (OR 12.5; 95% CI: 6.6–23.5). Reporting unfriendly HCW attitudes was also associated with increased odds of poor perceived QoC (OR 13.5; 95% CI: 7.7–23.9). Dissatisfaction with ART counselling was strongly associated with poor perceived QoC (OR 74.8; 95% CI: 17.8–314.1) (Table 2).

A multivariable binomial logistic regression model was fitted to assess predictors of perceived good QoC while adjusting for potential confounders. The model included socio-demographic, access-related, stigma-related, and HCW – related variables. The overall model was statistically significant ($\chi^2(13) = 94.89$, $p < 0.001$), indicating good discrimination between participants reporting good versus poor

Table 3: Multivariable Logistic Regression Analysis of Factors Associated with Good Perceived Quality of Care Among Adults Returning to HIV Care in Nigeria

Variable	Adjusted Odds Ratio (aOR)	95% CI	P-value
Good waiting time	1.49	0.35–6.38	0.591
Ease of access	0.69	0.14–3.56	0.659
Friendly healthcare worker	42.04	5.27–335.44	<0.001
Good HCW counselling	0.82	0.06–11.47	0.885
Female sex	2.99	0.84–10.57	0.090
Good privacy/confidentiality	0.38	0.10–1.47	0.162
Trust in HCW competence	2.21	0.24–20.53	0.484
Satisfaction with ART counselling	141.45	5.62–3561.94	0.003
No previous stigma experience	7.72	1.35–44.24	0.022
Previous LTFU episode	1.41	0.37–5.33	0.626
Age group (overall)	—	—	0.747

perceived QoC. The model explained between 32% (Cox & Snell R²) and 61% (Nagelkerke R²) of the variance in perceived QoC and correctly classified 87.8% of cases.

After adjustment, only three variables remained independently associated with perceived QoC: perceived HCW friendliness, satisfaction with ART counselling, and prior experience of stigma. Healthcare worker friendliness (aOR = 42.04; 95% CI: 5.27–335.44) and satisfaction with ART counselling (aOR = 141.45; 95% CI: 5.62–3561.94) were independently associated with good perceived QoC. However, the wide confidence intervals indicate substantial uncertainty around the effect estimates and suggest that the magnitude of these associations should be interpreted with caution. Conversely, participants who reported no prior experience of stigma had higher odds of reporting good perceived QoC compared to those who reported stigma (aOR 7.71; 95% CI: 1.35–44.24). No access-related variables or prior LTFU history remained significant after adjustment. (Table 3)

DISCUSSION

This study examined predictors of perceived quality of care (QoC) among adults returning to HIV care after a loss to follow-up (LTFU) event in Nigeria. Most returnee clients (90%; 361) reported good perceived QoC prior to their most recent LTFU, and 28.8% (126) reported a history of LTFU. However, a prior history of LTFU was not associated with perceived QoC in either bivariate or multivariable

analyses, which suggests that disengagement from care may not necessarily reflect dissatisfaction with service quality and supports emerging evidence that LTFU is often episodic and influenced by dynamic structural and social factors rather than persistent negative perceptions of care.²⁴⁻²⁵

Despite the high prevalence of access barriers, which is consistent with other studies,²⁸⁻³⁰ they were not independently associated with perceived QoC after adjustment. This distinction suggests that structural access challenges primarily affect utilization and retention rather than perceptions of care quality once services are accessed, and even when these access barriers are widely experienced and normalized, clients may distinguish between systemic constraints and the quality of interpersonal care received at facilities.¹¹ Therefore, support for differentiated service delivery approaches is encouraged while highlighting that improvements in access alone may be insufficient to improve perceived QoC without parallel attention to interpersonal care.³¹⁻³²

Healthcare worker interpersonal behaviours and communication emerged as the dominant predictors of perceived QoC among adults returning to HIV care after LTFU. While trust in HCW competence was associated with perceived QoC at the bivariate level, it did not remain significant after adjustment, suggesting that trust may be mediated through observable interpersonal behaviours such as friendliness and quality of counselling. In contrast, HCW friendliness and satisfaction with ART

counselling remained strong independent predictors in the multivariable model.

The magnitude of the adjusted associations particularly for ART counselling, should be interpreted cautiously but underscores the central importance of provider communication in shaping patient experience. Similar findings have been reported in Kenya and South Africa, where positive provider–patient communication and supportive healthcare interactions were associated with improved patient satisfaction, engagement in care, and retention despite ongoing structural barriers to HIV service utilization.^{33–34} These findings reinforce the notion that the manner in which care is delivered may be more influential than what is delivered, especially for individuals re-engaging after disengagement.

Although concerns about confidentiality were significantly associated with perceived QoC at the bivariate level, these did not remain predictive in multivariable analysis. This may indicate that the influence of confidentiality and privacy on QoC may be mediated through broader experiences of stigma. Experience of stigma remained independently associated with perceived QoC, with participants reporting no prior stigma having eight times higher odds of reporting good QoC. This finding aligns with evidence demonstrating that stigma continues to shape patient experiences of care even when other service characteristics are favourable.^{35–36} The persistence of stigma effects after adjustment highlights the need for routine stigma-reduction interventions, including staff training, service redesign, and the creation of safe and respectful care environments within healthcare settings.

A major strength of this study is its focus on adults returning to HIV care after loss to follow-up, a population that is often underrepresented in HIV quality-of-care research. The study included participants from multiple PEPFAR-supported ART facilities across Nigeria, improving the diversity and relevance of the findings. It also examined both structural and interpersonal dimensions of care, allowing identification of independent predictors of perceived quality of care.

However, the study had some limitations. The cross-sectional design limits causal interpretation of the findings. Data were based on self-reported experiences and may be subject to recall or social desirability bias. In addition, only clients who

returned to care were included, which may limit generalizability to individuals who remained disengaged from treatment. Also, the use of secondary programme data restricted the assessment of some psychosocial and contextual factors that may influence quality of care perceptions.

The extremely large adjusted odds ratios observed for healthcare worker friendliness and ART counselling likely reflects the strong influence of provider–patient interactions on perceived quality of care among returnee clients. However, the wide confidence intervals indicate limited precision and may be attributable to sparse data in some categories or near-complete separation in the logistic regression model. Consequently, while the findings support the importance of respectful care and effective counselling, the magnitude of the observed associations should be interpreted cautiously. Future studies with larger sample sizes and alternative modelling approaches may provide more stable estimates of these effects.

CONCLUSION

Among adults returning to HIV care after LTFU in the study, perceived quality of care was independently associated with healthcare worker friendliness, satisfaction with ART counselling, and prior experience of stigma. Structural access barriers and prior LTFU history, although commonly reported, were not independent predictors of perceived QoC after adjustment. These findings highlight the critical role of interpersonal and communication-focused care in shaping patient experiences and support the inclusion of patient-reported experience measures in routine HIV quality improvement systems. Strengthening HCW communication skills and implementing stigma-reduction strategies may improve perceived QoC and support sustained re-engagement in HIV care.

CONFLICT OF INTEREST

The authors declare that they have no competing interests.

CONTRIBUTION OF AUTHORS

ABA: Conceptualization, Data curation, Methodology, Review Analysis, Writing – Review & Editing.

NI: Conceptualization, Data curation, Formal Analysis, Methodology, Writing – Original Draft, Writing – Review & Editing.

AN, OOM, IT, IO &IA: Data curation, Methodology, Review Analysis, Writing – Review & Editing.

All authors contributed to data interpretation, critically reviewed the manuscript for important intellectual content, approved the final manuscript, and accepted responsibility for the integrity and accuracy of the work.

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