IBOM MEDICAL JOURNAL
Vol.19 No.2 | April - June 2026 | Pages 435-443
www.ibommedicaljournal.org

Psychometric Validation of the TEAS and CATS Recovery Scales among Individuals with Substance Use Disorders in a Nigerian Tertiary Hospital

Chikaodiri Nkereuwem Aghukwa[1], Abubakar Sulaiman Baguda[1,2], Zakariyya Ibrahim Abdurrahman[1], Mudasir Muhammad Danjumma[1,3]

[1]*Department of Psychiatry, Aminu Kano Teaching Hospital, Kano, Kano State, Nigeria.*
[2]*Federal Neuro-Psychiatric Hospital, Kware, Sokoto State, Nigeria.*
[3]*Department of Mental Health, Federal Medical Centre, Bida, Niger State, Nigeria.*

Abstract

Context: Reliable measurement tools are critical for assessing the efficacy of substance use disorder (SUD) treatments, especially in low-resource settings. The Treatment Efficacy Assessment Scale (TEAS) and Clinical and Treatment Satisfaction Scale (CATS) were developed to monitor recovery domains and treatment satisfaction among individuals receiving addiction care.This study evaluated the psychometric properties and construct validity of the TEAS and CATS instruments among patients undergoing treatment for SUDs at Aminu Kano Teaching Hospital, Nigeria.
Materials and Methods: A cross-sectional sample of 201 respondents completed both TEAS and CATS. Internal consistency was assessed using Cronbach's alpha. Factor structure was examined using principal component analysis (PCA) with Varimax rotation. Construct validity was assessed through correlational and logistic regression analyses involving clinical variables (e.g., comorbidities, legal issues, and functioning domains).
Results: TEAS demonstrated acceptable internal consistency ($\alpha = 0.74$) and a unidimensional factor structure. CATS showed excellent reliability ($\alpha = 0.90$) with a single extracted component. Both tools demonstrated significant correlation with objective clinical indicators and patient-reported outcomes, thereby supporting their construct validity. These findings support the routine clinical use of TEAS and CATS for outcome monitoring in Nigerian addiction care settings.

Keywords: TEAS, CATS, substance use disorder, Nigeria, scale validation, treatment outcome, psychometric evaluation

Introduction

Substance use disorders (SUDs) contribute substantially to the global burden of disease[1] and remain a growing public health concern in many low- and middle-income countries. In Nigeria, an estimated 14.3 million individuals aged 15–64 years reported using psychoactive substances within the past year, with cannabis, tramadol, and non-medical opioid use among the most commonly reported substances.[2,3] Despite this high burden, access to effective treatment remains limited due to stigma, inadequate service capacity, shortage of trained personnel, and financial barriers.[4] These challenges have prompted an urgent need for reliable tools for monitoring treatment progress and evaluating the quality of addiction care.

Corresponding Author:

Mudasir Muhammad Danjumma
Department of Mental Health, Federal Medical Centre, Bida, Niger State, Nigeria.

m.danjuma@fmcbida.org

DOI: 10.61386/imj.v19i2.1076

Historically, addiction was viewed through moral or spiritual lenses, with treatment often rooted in religious or punitive traditions.[5] Over time, particularly from the mid-20th century, a biomedical model emerged, marked by the introduction of methadone maintenance, therapeutic communities,

and behavioural therapies.[6] This evolution gradually gave way to a multidisciplinary, patient-centred, and recovery-oriented approach that extends beyond abstinence to include improvements in health, psychosocial functioning, and quality of life, while emphasising the patient's voice in evaluating treatment progress.[7] Patient-reported outcomes such as treatment satisfaction, engagement with care, and perceived recovery are now recognised as key indicators of treatment effectiveness. Evidence from clinical settings suggests that higher levels of patient satisfaction are associated with improved treatment retention and better substance-use outcomes.[8,9] Consequently, brief and reliable instruments capable of capturing these multidimensional outcomes[10] are increasingly used in addiction treatment services.

Two such tools are the Treatment Efficacy Assessment Scale (TEAS) and the Clinical and Treatment Satisfaction Scale (CATS). TEAS is a brief patient-reported measure that assesses perceived improvements in domains such as substance use control, health, personal responsibility, and overall functioning. The CATS instrument evaluates patient satisfaction with treatment services, including aspects of engagement, respect received, and perceived quality of care[11]. Due to their brevity and multidimensional focus[12], these instruments have been widely applied in high-income settings for monitoring treatment outcomes and patient experiences in addiction services.

However, the use of such instruments in low- and middle-income countries requires careful cultural adaptation and psychometric validation, as contextual, linguistic, and health-system differences may influence how patients interpret and respond to survey items. In African settings, efforts to validate addiction-related assessment tools remain limited. For example, the South African Addiction Treatment Services Assessment (SAATSA) demonstrated acceptable reliability and construct validity across several recovery domains, illustrating the feasibility of adapting patient-reported measures within African treatment systems[13]. Similarly, Nigerian studies have successfully validated instruments such as the SOCRATES-8 and the Social Media Disorder Scale, highlighting the importance and practicality of contextual psychometric evaluation[14,15].

Despite their growing use internationally, the TEAS and CATS instruments have not previously been validated in Nigerian or West African clinical populations. The absence of locally validated tools may limit the accuracy of outcome monitoring and the ability of treatment services to evaluate recovery and patient satisfaction effectively[16].

Therefore, the present study aimed to evaluate the psychometric properties of the TEAS and CATS instruments among individuals receiving outpatient treatment for substance use disorders at a Nigerian tertiary hospital. Specifically, the study assessed internal consistency, factor structure, and construct validity by examining associations with relevant clinical indicators, including toxicology results, comorbidity status, and treatment progress.

Materials and Methods

Study Design and Setting

This study employed a cross-sectional validation design, conducted at the outpatient addiction clinic of the Department of Psychiatry, Aminu Kano Teaching Hospital (AKTH), located in Kano, Nigeria. AKTH is a tertiary referral centre in northern Nigeria and provides comprehensive addiction treatment services. The addiction clinic operates once weekly and delivers multidisciplinary care to individuals with substance use disorders (SUDs), including services from psychiatrists, addiction specialists, clinical psychologists, social workers, nurses, and counsellors.

Participants and Sampling

The target population consisted of adult patients (aged 18 years and older) attending the outpatient addiction clinic during a three-month study period from January to March 2025. Because the addiction clinic operates once weekly, a census sampling method was adopted, whereby all eligible and consenting patients presenting to the clinic within the study window were included. Inclusion criteria were: (a) diagnosis of a substance use disorder, (b) ability to provide informed consent, and (c) fluency in English or Hausa. Patients who exhibited acute psychiatric symptoms—such as severe psychosis, disorganised behaviour, or cognitive impairment—that significantly interfered with their ability to comprehend the study procedures or

communicate effectively were excluded from participation.

Sample Size Considerations

A census sampling approach was employed, whereby all eligible and consenting patients presenting during the three-month study period were consecutively recruited. As such, no formal a priori sample size calculation based on expected effect size was performed.

The adequacy of the final sample was therefore evaluated against established recommendations for psychometric validation studies of brief instruments. A minimum participant-to-item ratio of 5:1 to 10:1 and an absolute sample size of 100–200 are generally considered sufficient for exploratory factor analysis and reliability assessment[17,18]. In this study, a total of 201 participants were recruited, exceeding these thresholds for the TEAS (4 items) and CATS (7 items), and providing a favourable participant-to-item ratio. The sample size was thus considered adequate to support the planned psychometric analyses, including principal component analysis, internal consistency testing, and regression modelling.

Measures and Instruments

Participants completed a structured survey comprising the following tools:

- Treatment Effectiveness Assessment (TEAS): A four-item self-report measure assessing functioning in the domains of substance use, physical health, responsibilities, and community integration.
- Client Assessment of Treatment Scale (CATS): A seven-item measure evaluating treatment satisfaction across domains such as receiving appropriate treatment, therapeutic engagement, respectful care, staff demeanour, and treatment helpfulness.
- Alcohol, Smoking and Substance Involvement Screening Test (ASSIST): A validated WHO screening instrument for categorising substance use risk (low, moderate, or high) across multiple substances.
- Urine toxicology results: Objective data on recent substance use, extracted from clinical records within the past 12 weeks.
- Socio-demographic questionnaire: Captured participant details including age, gender, ethnicity, marital status, education, employment status, monthly income, and area of residence.

Both the TEAS and CATS instruments were translated into Hausa, where necessary, using a forward–backwards translation method to ensure linguistic and conceptual equivalence. Pretesting was conducted with five clients who were not included in the main study sample. This pilot process helped identify minor issues related to clarity and comprehension, which were subsequently addressed through revision. The final versions reflected feedback from this pre-test, ensuring appropriateness for the target population.

Data Collection Procedures

Participants were recruited at the clinic after a routine medical assessment. Questionnaires were administered in a quiet setting to ensure privacy. Trained research assistants assisted participants with low literacy or visual impairment. Responses were self-reported or interviewer-assisted, based on participant preference. Completed forms were deposited in sealed collection boxes to ensure anonymity.

Data Analysis

All statistical analyses were conducted using IBM SPSS Statistics version 25. Descriptive statistics, including means, standard deviations, frequencies, and percentages, were used to summarise participants' socio-demographic characteristics and responses to the scale items.

The internal consistency reliability of the Treatment Efficacy Assessment Scale (TEAS) and the Clinical and Treatment Satisfaction Scale (CATS) was evaluated using Cronbach's alpha coefficients, with values of $\alpha \geq 0.70$ considered indicative of acceptable reliability.

Construct validity was examined using exploratory factor analysis (EFA) conducted through principal component analysis (PCA) with Varimax rotation. The suitability of the data for factor analysis was assessed using the Kaiser–Meyer–Olkin (KMO) measure of sampling adequacy and Bartlett's test of sphericity. Factors with eigenvalues ≥ 1.0 were retained, and items with factor loadings ≥ 0.40 were considered meaningful contributors to a factor.

Known-group validity was assessed by comparing

TEAS and CATS scores across predefined clinical and demographic subgroups, including ASSIST risk categories, urine toxicology results, and selected socio-demographic characteristics, using Chi-square tests or Fisher's Exact tests where appropriate.

Predictive validity was further evaluated using binary logistic regression analyses to determine whether TEAS and CATS scores were associated with clinically relevant outcomes, including recent substance use (based on urine toxicology results) and reported treatment satisfaction.

Statistical significance for all analyses was set at $p < 0.05$.

Ethical Considerations

Ethical approval for this study was obtained from the Health Research Ethics Committee of Aminu Kano Teaching Hospital (AKTH), Kano, Nigeria (Reference Number: AKTH/MAC/SUB/12A/P-3/VI/3977). The study adhered to the ethical principles of the Declaration of Helsinki.

Written informed consent was obtained from all participants before enrolment in the study. Participants were informed that their participation was voluntary and that they could withdraw from the study at any time without any consequences to their ongoing treatment or care. Confidentiality and anonymity were strictly maintained by de-identifying all data and securing completed forms in locked storage accessible only to the research team.

All procedures were designed to ensure that the privacy, dignity, and rights of the participants were protected throughout the research process.

Results

A total of 201 participants were included in the study. The sample was predominantly male (89.1%), with the majority aged 20–39 years (78.6%). Most participants were Hausa (77.6%), followed by Igbo (7.0%), Yoruba (6.0%), and other ethnic groups (9.5%).

Nearly half (49.8%) had secondary education, while 44.3% had tertiary education. Over one-third were students (35.3%), and 25.9% were unemployed. More than half (55.7%) reported a monthly income below ₦20,000, and most resided in urban areas (85.6%) (Table 1).

Table 1. Socio-demographic characteristics of respondents (N = 201)

Variable	Category	Frequency	Percent
Age Category (years)	< 20	19	9.5%
	20 29	94	46.8%
	30–39	64	31.8%
	40–49	16	8.0%
	50–59	7	3.5%
	Missing	1	0.5%
Gender	Male	179	89.1%
	Female	22	10.9%
Ethnicity	Hausa	156	77.6%
	Yoruba	12	6.0%
	Igbo	14	7.0%
	Others	19	9.5%
Educational Level	No formal education	7	3.5%
	Primary	5	2.5%
	Secondary	100	49.8%
	Tertiary	89	44.3%
Marital Status	Single	146	72.6%
	Married	43	21.4%
	Divorced	7	3.5%
	Widowed	2	1.0%
	Separated	3	1.5%
Employment Status	Employed full-time	39	19.4%
	Employed part-time	36	17.9%
	Unemployed	52	25.9%
	Student	71	35.3%
	Retired	3	1.5%
Monthly Income (₦)	< 20,000	112	55.7%
	20,000–40,000	21	10.4%
	41,000–60,000	14	7.0%
	61,000–80,000	14	7.0%
	81,000–100,000	20	10.0%
	> 100,000	20	10.0%
Area of Residence	Urban	172	85.6%
	Rural	29	14.4%

Psychometric Properties of TEAS and CATS

Principal component analysis (PCA) was conducted to examine the factor structure of both instruments. For the TEAS (4 items), the Kaiser-Meyer-Olkin (KMO) measure was 0.747, and Bartlett's test of sphericity was significant ($\chi^2 = 403.04$, $df = 6$, $p < 0.001$). A single component with eigenvalue > 1 was extracted, explaining the majority of variance, with all items loading strongly (> 0.74). The scree plot confirmed a unidimensional structure.

For the CATS (7 items), the KMO was excellent (0.901), and Bartlett's test was highly significant ($\chi^2 = 1504.89$, $df = 21$, $p < 0.001$). PCA again yielded a single dominant factor with high loadings (0.79–0.86) on all items. These results support a unidimensional structure and good internal consistency for both brief scales in this population (see Tables 2 and 3 for factor loadings; Figures 1 and 2 for scree plots).

Associations with Clinical Outcomes

Chi-square tests on 188 participants with urine

Table 2: Factor loadings from Principal Component Analysis for the TEAS (N = 201)

Item	Factor Loading
Substance Use	0.82
Health	0.78
Responsibility	0.74
Community Functioning	0.80

Table 3: Factor loadings from Principal Component Analysis for the CATS (N = 201)

Item	Factor Loading
Therapeutic Relationship	0.83
Treatment Satisfaction	0.85
Communication Clarity	0.79
Patient Involvement	0.81
Perceived Helpfulness	0.86
Follow-up and Support	0.82
Goal Achievement	0.84

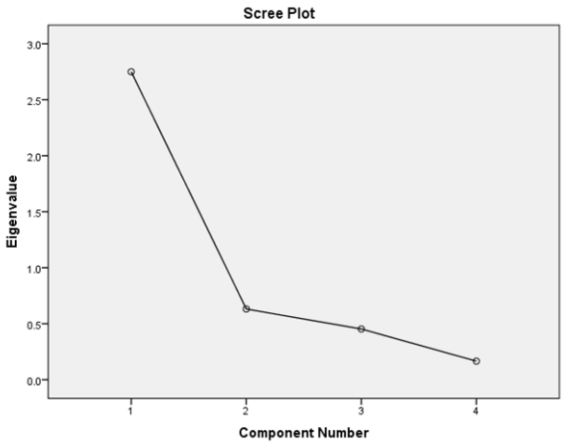

Figure 1: Scree plot of the Principal Component Analysis for the Treatment Effectiveness Assessment Scale (TEAS)
The plot shows a steep decline after the first component, supporting a unidimensional structure.

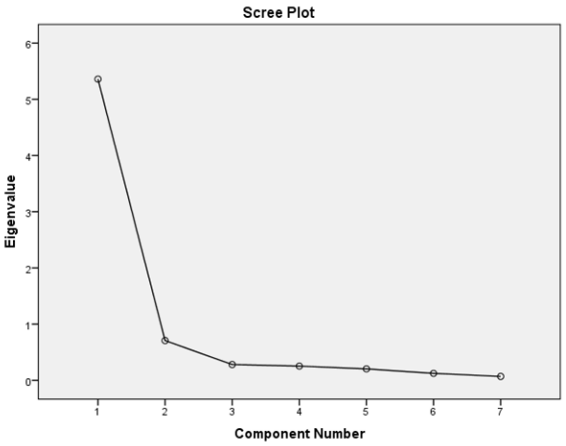

Figure 2: Scree plot of the Principal Component Analysis for the Clinical Assessment Tool Scales (CATS)
The visual shows only one component above the eigenvalue threshold, indicating a single dominant factor.

Binary logistic regression further demonstrated the predictive utility of TEAS domains. Higher scores in Substance Use Recovery strongly reduced the odds of a positive toxicology result (OR = 0.25, 95% CI 0.15–0.42, $p < 0.001$). Poor Responsibility Management increased odds approximately five-fold (OR = 4.86, 95% CI 2.03–11.63, $p = 0.001$), while better Community Integration was protective (OR = 0.435, 95% CI 0.287–0.660, $p < 0.001$). These findings support the criterion and predictive validity of the TEAS (Table 4).

ASSIST Risk Stratification and Associations

Participants were classified into low–moderate risk (ASSIST score ≤ 22) or high risk (≥ 23). High-risk individuals were significantly more likely to have positive urine toxicology results (Fisher's exact test toxicology data showed significant associations between three TEAS domains and negative toxicology results: Substance Use ($\chi^2 = 36.11$, $p < 0.001$), Responsibility Management ($\chi^2 = 14.24$, $p = 0.001$), and Community Integration ($\chi^2 = 17.00$, $p < 0.001$). Participants rating themselves highly in these domains were more likely to have negative toxicology screens.

Table 4: Binary logistic regression analysis: TEAS domains predicting urine toxicology outcomes (N = 188)

TEAS Domain	χ^2 (df)	*p*-value	Nagelkerke R^2	Odds Ratio (OR)	95% CI	Interpretation
Substance Use Recovery	34.59(1)	<0.001	0.168 0.228	0.25	[0.15, 0.42]	Higher scores reduced the odds of a positive test by 75%
Responsibility Management	14.01(2)	0.001	0.072– 0.097	4.86 (for "Poor")	[2.03, 11.63]	Poor ratings increased the odds of a positive test ~5x
Community Integration	16.53(1)	<0.001	0.084– 0.114	0.435	[0.287, 0.660]	Good functioning reduced positive test odds by 56%

Table 5: Associations between ASSIST risk level and key outcomes (N = 201)

Outcome Variable	Test Used	Statistic	p-value	Odds Ratio (OR)	95% CI	Interpretation
Urine toxicology (Positive)	Fisher's Exact + Logistic	OR = 12.80	**0.042**	12.80	1.10–149.30	High ASSIST risk → higher odds of positive test
TEAS: Substance Use Functioning	Logistic regression	OR = 3.75	0.170	3.75	0.56–25.00	Higher risk → poorer functioning (trend)
TEAS: Health Functioning	Logistic regression	OR = 1.50	0.686	1.50	0.22–10.37	Higher risk → poorer functioning (trend)
TEAS: Community Integration	Logistic regression	OR = 2.20	0.420	2.20	0.32–15.05	Higher risk → poorer functioning (trend)
CATS: Staff Pleasantness	Logistic regression	OR = 0.28	0.123	0.28	0.06–1.43	Higher risk → lower satisfaction (trend)
CATS: Right Medication	Logistic regression	OR = 0.22	0.088	0.22	0.04–1.27	Higher risk → lower satisfaction (trend)
CATS: Receiving the Right Treatment	Logistic regression	OR = 1.25	0.784	1.25	0.26–5.98	No clear association

Note: Analyses involving ASSIST risk level and TEAS/CATS domains were based on a small subgroup (N = 23 high-risk participants). Trends were generally in the expected direction but did not reach statistical significance.

p = 0.011; binary logistic regression OR = 12.80, 95% CI 1.1–149.3, p = 0.042), supporting the predictive validity of the ASSIST in this setting.

Associations between ASSIST risk level and TEAS/CATS domains were examined using Fisher's exact tests and binary logistic regression. No statistically significant relationships emerged (all p > 0.10). Trends were in the expected direction (higher ASSIST risk linked to lower TEAS functioning and slightly lower CATS satisfaction), but analyses were limited by the small number of high-risk participants available for these comparisons (N = 23). Larger studies are recommended to confirm these patterns. (Summary results are presented in Table 5).

Table 6: Receiver Operating Characteristic (ROC) analysis – TEAS domains predicting urine toxicology results (N = 188)

TEAS Domain	AUC	Standard Error (SE)	95% Confidence Interval	*p*-value
Substance Use Functioning	0.296	0.041	[0.217, 0.376]	<0.001
General Health Functioning	0.374	0.043	[0.290, 0.458]	0.004
Handling Responsibilities	0.386	0.043	[0.301, 0.471]	0.008
Community Functioning	0.357	0.042	[0.274, 0.440]	0.001

Note: AUC = Area Under the Curve; CI = Confidence Interval. AUC values <0.50 suggest inverse discrimination, i.e., lower functioning scores are more likely among those testing positive for substance use.

ROC Analysis for Criterion Validity

Receiver operating characteristic (ROC) analyses assessed the ability of TEAS and CATS domains to discriminate positive vs. negative urine toxicology results (N = 188). All TEAS domains showed statistically significant AUC values below 0.50, indicating inverse discrimination (lower self-rated functioning associated with recent substance use), with the Substance Use domain performing strongest (AUC = 0.296, p < 0.001; Table 6; Figure 3).

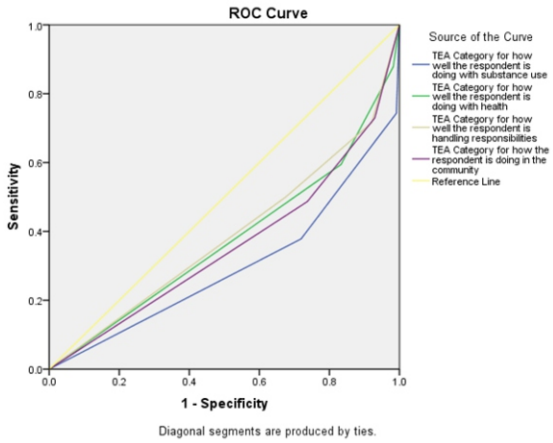

Figure 3: ROC Curve for TEAS Domains Predicting Urine Toxicology Results

Note: Lower TEAS scores were associated with a higher likelihood of recent substance use. All domains demonstrated AUCs significantly below 0.50, consistent with inverse discrimination.

Similarly, six of seven CATS domains had significant AUC values < 0.50, suggesting that lower treatment satisfaction was associated with positive toxicology results. The strongest inverse discrimination was observed for Pleasant Staff and Relationships (AUC = 0.369, p = 0.002; Table 7;

Figure 4). These findings provide additional support for the criterion validity of both instruments.

Table 7: Receiver Operating Characteristic (ROC) analysis – CATS domains predicting urine toxicology results (N = 188)

CATS Domain	AUC	SE	95% CI	*p*-value
Receiving the Right Treatment	0.398	0.044	[0.312, 0.483]	0.018
Therapist Engagement in Care	0.398	0.044	[0.312, 0.483]	0.018
Pleasant Staff and Relationships	0.369	0.043	[0.284, 0.453]	0.002
Receiving the Right Medication	0.384	0.043	[0.299, 0.470]	0.007
Correct Elements of Treatment Received	0.393	0.043	[0.308, 0.478]	0.013
Feeling Respected and Regarded	0.467	0.044	[0.381, 0.552]	0.442
Treatment Was Helpful	0.396	0.044	[0.310, 0.481]	0.016

Note: AUC = Area Under the Curve; CI = Confidence Interval. AUC values below 0.50 suggest inverse predictive value—lower satisfaction associated with a higher likelihood of recent substance use.

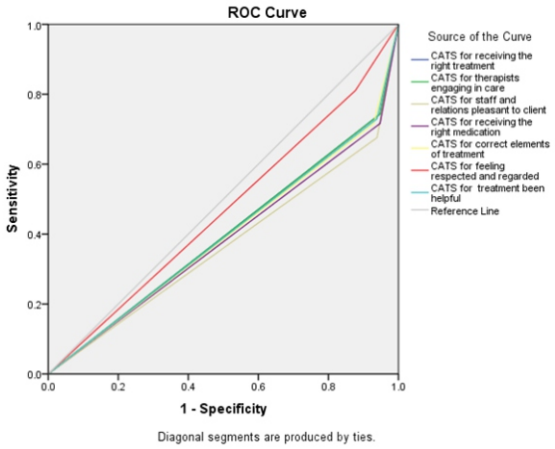

Figure 4: ROC Curve for CATS Domains Predicting Urine Toxicology Results

Note: Most CATS domains showed AUC values significantly below 0.50, indicating that low satisfaction was associated with a higher likelihood of testing positive for substance use.

Socio-demographic Comparisons (Known-group Validity)

Urban residents scored significantly higher than rural residents on three TEAS domains (Mann–Whitney U tests, all $p < 0.05$). Spearman correlations showed strong positive associations between TEAS scores and both education and income ($\rho = 0.80–0.90$, $p < 0.001$), supporting convergent validity. Weaker or non-significant associations with gender provided evidence of discriminant validity. Chi-square tests further linked marital status, employment, and income to select TEAS and CATS domains ($p < 0.05$). These patterns align with expected socio-economic differences in recovery and satisfaction.

Overall Interpretation

The results indicate that both the TEAS and CATS possess satisfactory psychometric properties in this Nigerian outpatient SUD sample, including unidimensional factor structure, good reliability, and evidence of construct, criterion, and known-group validity. Self-reported functioning and satisfaction showed meaningful alignment with objective toxicology outcomes. While some exploratory analyses involving smaller subgroups were underpowered, the primary findings support the clinical utility of these brief tools for routine monitoring in similar low-resource settings.

Discussion

This study evaluated the psychometric properties and clinical utility of the Treatment Effectiveness Assessment (TEAS) and Client Assessment of Treatment (CATS) scales among patients with substance use disorders attending outpatient care at a Nigerian tertiary hospital. Both brief instruments showed acceptable internal consistency and clear unidimensional factor structures. TEAS domains were significantly associated with urine toxicology results, and ROC analyses provided evidence of criterion validity, although the inverse relationships observed (AUC values < 0.50) suggest that lower self-reported functioning and satisfaction were linked to recent substance use.

The results are broadly consistent with validation studies conducted in high-income countries, where TEAS and CATS are reliable and practical tools for monitoring recovery and treatment satisfaction[7,11]. The current findings also contribute to the limited but growing literature on psychometric validation of patient-reported outcome measures in African settings. Similar successes have been reported with the South African Addiction Treatment Services Assessment (SAATSA) and with other adapted tools in Nigeria, such as the SOCRATES-8 and

Social Media Disorder Scale[13,14,15].

A distinctive feature of this study was the inverse association between self-reported TEAS and CATS scores and objective urine toxicology outcomes. This pattern, while not commonly reported in high-income settings, may reflect cultural factors such as social desirability bias or stigma associated with admitting ongoing substance use in Nigerian contexts. These findings highlight the importance of combining self-report measures with biological markers when assessing recovery in high-stigma environments.[10]

Clinical Implications

The TEAS and CATS appear to be feasible and potentially useful tools for routine outcome monitoring in Nigerian addiction services. In particular, the Substance Use and Responsibility domains of the TEAS showed meaningful associations with toxicology results and could help clinicians identify patients who may benefit from intensified support or relapse prevention interventions. The CATS offer a simple way to capture patient satisfaction and perceived treatment quality, which are important for improving engagement and retention[8,9].

However, the inverse relationships observed in the ROC analyses underscore the need for cautious interpretation. Patient-reported outcomes should not be used in isolation but rather as part of a multi-method assessment that includes clinical evaluation and objective measures such as urine toxicology.[4,10]

Strengths and Limitations

Strengths of this study include the use of real-world clinical participants from a tertiary addiction clinic and the application of multiple analytic approaches (factor analysis, regression, and ROC) to evaluate different aspects of validity. Key limitations must be acknowledged. The cross-sectional design limits conclusions about causality or sensitivity to change. Some subgroup analyses, particularly those involving high ASSIST-risk participants, were likely underpowered due to small numbers. Self-report data may have been influenced by social desirability or recall bias, and the findings may not fully generalise to non-treatment-seeking or predominantly rural populations. Further validation in diverse settings is therefore warranted.

Recommendations and Future Directions

Future research should examine the longitudinal validity and responsiveness of TEAS and CATS to treatment changes over time. Qualitative studies could provide deeper insight into how patients in Nigerian contexts interpret the items and any cultural influences on responding. Expanding validation to primary care, community-based, and rural addiction services would also strengthen the evidence base for wider implementation across Nigeria and West Africa.

Conclusion

In summary, the TEAS and CATS demonstrated acceptable psychometric properties and preliminary evidence of clinical utility in a Nigerian outpatient SUD population. When used alongside objective measures, these brief, low-cost tools have the potential to support more patient-centred monitoring and evaluation of addiction treatment services in resource-limited settings.

Funding: None
Conflicts of Interest: None

References

1. National Survey on Drug Use and Health. Results from the 2021 National Survey on Drug Use and Health: Detailed Tables. Rockville, MD: Substance Abuse and Mental Health Services Administration (SAMHSA); 2022.
2. United Nations Office on Drugs and Crime (UNODC). Drug Use in Nigeria 2018. Vienna: UNODC; 2019.
3. National Drug Law Enforcement Agency (NDLEA). Drug use statistics in Nigeria: A review. Lagos: NDLEA; 2018.
4. Ogunwale A, Olatawura MO, Adamson TA. Psychiatric stigma and discrimination in Nigeria: review of literature. Niger J Psychiatry. 2018;16(2):61–8.
5. Smith DE. The evolution of addiction medicine as a medical specialty. J Psychoactive Drugs. 2004;36(4):395–9.
6. White WL. Slaying the Dragon: The History of Addiction Treatment and Recovery in America. Bloomington, IL: Chestnut Health Systems; 1998.

7. McLellan AT, Chalk M, Bartlett J. Outcomes, performance, and quality: what's the difference? J Subst Abuse Treat. 2007;32(4):331–40.
8. Bohman B, Lundeberg J, Lindgren A, Norlén C, von Knorring L. Patient satisfaction and treatment outcome in psychiatric outpatient care. Open J Med Psychol. 2017;6(3):83–95.
9. Thylstrup B. Treatment satisfaction and outcomes among substance abusers. Nord Stud Alcohol Drugs. 2011;28(2):145–55.
10. Krumeich A, Weijers D, Bilsen J, Clark C, Cooper A, Meyers T, et al. Patient experiences in addiction care in Cape Town, South Africa: implications for improving care. Int J Ment Health Syst. 2022;16(1):52.
11. Zweben JE, Zuckoff A. Motivational interviewing and treatment adherence. In: O'Donohue W, Draper C, editors. Psychological interventions and countermeasures for PTSD. New York: Springer; 2008. p. 319–36.
12. Ling, W., Farabee, D., Liepa, D., & Wu, L. T. (2012). The Treatment Effectiveness Assessment (TEA): an efficient, patient-centered instrument for evaluating progress in recovery from addiction. Substance abuse and rehabilitation, 3(1), 129–136. https://doi.org/10.2147/SAR.S38902
13. Peña-Orellana M, Domeyer N, Daniels A, Parry C, Myers B. Measuring quality in substance abuse treatment: development of the South African Addiction Treatment Services Assessment (SAATSA). Subst Abuse Treat Prev Policy. 2015;10:42.
14. Abiola T, Udofia O, Zakari M. Psychometric properties of the 10-item Alcohol Use Disorders Identification Test (AUDIT) and the 8-item Stages of Change Readiness and Treatment Eagerness Scale (SOCRATES) among Nigerian patients. Afr J Drug Alcohol Stud. 2015;14(2):103–14.
15. Afe TO, Ibigbami O, Yusuf AJ. Validation of the Social Media Disorder Scale among Nigerian university students. BMC Psychol. 2020;8:114.
16. Jatau AI, Abdu-Aguye SN, Afolabi MO, Wada AS, Yusuff KB. Drug abuse in Nigeria: a review of epidemiological studies. J Drug Issues. 2021;51(1):80–97.
17. Tabachnick BG, Fidell LS. Using multivariate statistics. 6th ed. Harlow: Pearson; 2013.
18. Hair JF Jr, Black WC, Babin BJ, Anderson RE. Multivariate data analysis. 8th ed. Andover: Cengage Learning EMEA; 2019.