

Prevalence, Patterns and Factors Associated with Intimate Partner Violence among Women Living with HIV Attending a Tertiary Hospital in North-Central Nigeria: A Cross-Sectional Study

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Abstract

Background: Intimate partner violence (IPV) may adversely affect the wellbeing, treatment adherence and engagement in care of women living with HIV. This study determined the prevalence, patterns and factors associated with IPV among women receiving HIV care in North-Central Nigeria. **Methods:** A hospital-based cross-sectional study was conducted among women living with HIV attending the Federal University Teaching Hospital, Lafia. Following data cleaning, 296 eligible unique participants were retained. IPV was assessed using the eight-item Women Abuse Screening Tool (WAST); scores ≥ 5 indicated probable IPV during the preceding 12 months. Descriptive statistics, chi-square or exact tests and multivariable logistic regression were employed. **Results:** Among 288 participants with complete WAST responses, 151 screened positive for IPV, giving a prevalence of 52.4%. Emotional, physical and sexual abuse were reported by 44.1%, 42.4% and 22.9%, respectively. In the adjusted model ($n=268$), women aged 25–34 years had higher odds of IPV than those aged 35–44 years (AOR=3.92; 95% CI: 1.22–12.61), whereas women aged ≥ 55 years had lower odds (AOR=0.20; 95% CI: 0.07–0.63). Remaining with the same partner since HIV diagnosis was associated with increased odds of IPV (AOR=4.65; 95% CI: 1.50–14.37). The model demonstrated acceptable calibration and discrimination. **Conclusion:** IPV was common among women receiving HIV care, with emotional and physical abuse particularly prominent. HIV services should incorporate confidential, trauma-informed enquiry, safety assessment and appropriate multidisciplinary referral pathways.

Keywords: HIV, Intimate partner violence, Women, WAST, Nigeria.

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INTRODUCTION

Over the past three decades, remarkable advances in antiretroviral therapy (ART), diagnostic technologies and preventive interventions have

transformed human immunodeficiency virus (HIV) infection from an almost universally fatal disease into a chronic manageable condition. These advances have substantially reduced HIV-related morbidity and mortality and improved life expectancy for millions of

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people worldwide. Nevertheless, HIV remains a major global public health challenge, particularly in low- and middle-income countries where socioeconomic inequalities, weak health systems and structural barriers continue to sustain transmission and limit equitable access to prevention, treatment and long-term care. [1,2]

According to the Joint United Nations Programme on HIV/AIDS (UNAIDS), approximately 40.8 million people were living with HIV globally at the end of 2024, including 39.4 million adults and 1.4 million children. During the same period, an estimated 1.3 million people acquired new HIV infection, while approximately 630,000 individuals died from AIDS-related illnesses despite continued expansion of ART programmes. [1] Although considerable progress has been made towards the UNAIDS 95-95-95 targets, important disparities persist across and within countries, particularly in resource-constrained settings where health systems continue to face financial, infrastructural and workforce limitations.[2]

Sub-Saharan Africa remains the epicentre of the HIV epidemic, accounting for nearly two-thirds of all people living with HIV worldwide. Women and adolescent girls continue to bear a disproportionate burden of infection, representing more than half of all adults living with HIV globally and the majority of new infections in the region.[1] This disparity is driven by the interaction of biological susceptibility with entrenched social and structural determinants including gender inequality, poverty, limited educational opportunities, economic dependence and restricted autonomy in sexual and reproductive decision-making. These factors not only increase women's vulnerability to HIV acquisition but also adversely influence engagement in care, treatment adherence and long-term health outcomes. 3,4]

Consequently, contemporary HIV control strategies increasingly recognise that biomedical interventions alone are insufficient to achieve sustained epidemic control. Effective HIV care requires addressing the broader social determinants that influence health outcomes among women living with HIV. Among these determinants, intimate partner violence has emerged as one of the most important yet frequently overlooked barriers to successful HIV prevention, treatment adherence, viral suppression and overall wellbeing. [5,6]

Intimate partner violence (IPV) is one of the most common forms of violence against women and is increasingly recognised as a major public health, human rights and development concern. The World Health Organization (WHO) defines IPV as any behaviour within an intimate relationship that results in physical, sexual or psychological harm, including acts of physical aggression, sexual coercion, emotional abuse and controlling behaviours perpetrated by a current or former intimate partner.[1] Despite sustained global efforts to promote gender equality and protect women's rights, IPV

remains pervasive across diverse cultural and socioeconomic settings. The WHO estimates that approximately 30% of ever-partnered women worldwide have experienced physical and/or sexual violence by an intimate partner during their lifetime, making IPV the most common form of violence against women globally.¹ The health consequences extend beyond immediate physical injuries and include chronic pain syndromes, sexually transmitted infections, unintended pregnancies, adverse pregnancy outcomes, depression, anxiety, post-traumatic stress disorder, substance use disorders and suicide.[1,3]

Over the past decade, increasing attention has focused on the complex relationship between IPV and HIV infection, particularly among women living with HIV (WLHIV). Rather than existing as separate public health problems, HIV and IPV are now recognised as mutually reinforcing conditions that adversely influence each other through biological, behavioural and social pathways. Women who experience IPV are less likely to negotiate condom use, more likely to engage in high-risk sexual relationships, and often have limited autonomy in making reproductive health decisions, thereby increasing their vulnerability to HIV acquisition.[4,6] Conversely, HIV infection may itself increase the risk of violence, particularly following HIV status disclosure, which may trigger blame, abandonment, emotional abuse, physical assault or economic deprivation in relationships characterised by unequal power dynamics and HIV-related stigma.[7]

Among women already living with HIV, exposure to IPV has important implications for HIV treatment outcomes. Studies consistently demonstrate that women experiencing violence are more likely to delay linkage to HIV care, exhibit poor adherence to antiretroviral therapy, miss clinic appointments and experience treatment interruption, ultimately resulting in reduced viral suppression and increased HIV-related morbidity.[8,10] Furthermore, the psychological consequences of IPV, including depression, anxiety and traumatic stress, may further compromise treatment adherence and self-management while diminishing health-related quality of life. These findings have prompted international organisations, including WHO and UNAIDS, to advocate for the integration of IPV screening and appropriate referral services into routine HIV care as part of a comprehensive, patient-centred approach to improving clinical outcomes among women living with HIV. [1,3,11]

Sub-Saharan Africa bears the greatest dual burden of HIV infection and intimate partner violence (IPV), making the intersection of these conditions a major public health concern. Although the region has witnessed substantial progress in HIV prevention and treatment over the past two decades, violence against women remains pervasive and continues to undermine HIV control efforts. Recent systematic reviews have

consistently demonstrated that women living with HIV (WLHIV) in sub-Saharan Africa experience significantly higher rates of emotional, physical and sexual IPV than women in the general population.[14,16] The coexistence of these conditions reflects shared structural determinants, including gender inequality, poverty, limited educational attainment, harmful sociocultural norms, economic dependence, and persistent HIV-related stigma. These factors not only increase women's vulnerability to violence but also impede timely HIV diagnosis, sustained engagement in care, optimal adherence to antiretroviral therapy (ART) and achievement of viral suppression. [14,17]

Beyond its direct physical consequences, IPV has important implications for HIV treatment outcomes and overall wellbeing. Studies conducted in South Africa, Uganda, Kenya, Ethiopia and Tanzania have consistently reported that women exposed to IPV are more likely to experience depression, anxiety, psychological distress, poor ART adherence, treatment interruption and virological failure than women who are not exposed to violence. [16,20] Furthermore, fear of violence frequently discourages women from disclosing their HIV status to intimate partners, thereby limiting access to emotional, financial and social support that may facilitate long-term treatment engagement. These findings have reinforced recommendations by the World Health Organization and UNAIDS that routine assessment of IPV should be integrated into comprehensive HIV care, particularly in high-burden settings where both HIV infection and gender-based violence remain prevalent. [1,3]

Nigeria has the second-largest HIV epidemic in sub-Saharan Africa and continues to experience a substantial burden of violence against women despite ongoing public health interventions. Although several Nigerian studies have examined IPV among WLHIV, reported prevalence estimates vary considerably because of differences in study populations, geographical settings, measurement instruments and definitions of violence. Studies conducted in south-western and south-eastern Nigeria have generally reported moderate to high levels of IPV among women attending HIV treatment clinics, with emotional violence consistently emerging as the most prevalent form of abuse. [21,24] Other studies have identified younger age, lower educational attainment, unemployment, financial dependence, HIV-related stigma, partner's alcohol use and relationship instability as important correlates of IPV. [22,25] However, the relative contribution of these factors has not been consistent across studies, reflecting the influence of contextual socioeconomic and cultural differences.

Despite the growing body of evidence from Nigeria, important gaps remain. Most published studies have been conducted in southern Nigeria, while relatively little is known about the epidemiology of IPV

among WLHIV in North-Central Nigeria, where cultural diversity, religious plurality and socioeconomic characteristics differ from other geopolitical zones. In addition, many previous studies have focused primarily on estimating prevalence without comprehensively examining the patterns of abuse or identifying independent predictors using multivariable analytical approaches. Consequently, context-specific evidence capable of informing integrated HIV and violence prevention programmes in North-Central Nigeria remains limited. Addressing these knowledge gaps is essential for developing targeted interventions that improve both HIV-related outcomes and the overall wellbeing of women living with HIV.

Therefore, this study determined the prevalence, patterns and factors associated with intimate partner violence among women living with HIV attending a tertiary hospital in North-Central Nigeria.

METHODS

Study design and setting

This hospital-based cross-sectional study was conducted among women living with HIV attending the Special Treatment Clinic (STC) of the Federal University Teaching Hospital (FUTH), Lafia, Nasarawa State, Nigeria. FUTH Lafia is a tertiary referral hospital that provides comprehensive HIV prevention, treatment and care services to patients from Nasarawa State and neighbouring states in North-Central Nigeria. The Special Treatment Clinic offers HIV counselling and testing, antiretroviral therapy (ART), adherence counselling, laboratory monitoring and psychosocial support through a multidisciplinary team.

Study population

The study population comprised women living with HIV receiving care at the Special Treatment Clinic during the study period.

Eligible participants were women aged 18 years and above with confirmed HIV infection who had a current or former intimate partner during the preceding 12 months and were attending the clinic for routine HIV care. Women who were critically ill, had severe cognitive impairment or were unable to provide informed consent were excluded.

Sample size determination

The minimum sample size was calculated using Cochran's formula for single-population cross-sectional studies:

$$n = \frac{Z^2 P(1 - P)}{d^2}$$

where Z was 1.96 at the 95% confidence level, P was the estimated prevalence of intimate partner violence among women living with HIV obtained from a previous Nigerian study, and d was set at 5%.

A total of 306 questionnaires were entered into the source dataset. During the prespecified data audit, nine exact duplicate records and one record belonging to a participant aged below the eligibility threshold of 18 years were excluded. The final eligible unique sample comprised 296 women; 288 had complete responses to all eight WAST items and were included in IPV prevalence and association analyses.

Sampling procedure

A consecutive sampling technique was employed. Eligible women attending the clinic during routine clinic days were approached consecutively and invited to participate until the required sample size was attained.

Data collection

Data were collected between July and September, 2025 using interviewer-administered structured questionnaires by trained research assistants under the supervision of the principal investigator. Interviews were conducted in private consultation rooms to ensure confidentiality.

The questionnaire consisted of three sections:

- socio-demographic characteristics;
- HIV-related clinical characteristics;
- intimate partner violence assessment.

The questionnaire was available in English and Hausa. The Hausa version underwent forward and backward translation by bilingual experts to ensure conceptual equivalence.

Measurement of intimate partner violence

Intimate partner violence was assessed using the Women Abuse Screening Tool (WAST). The WAST consists of eight items assessing relationship tension, difficulty resolving disagreements, emotional abuse, physical abuse and sexual abuse.

The administered WAST used three ordered responses scored according to the official protocol: response A (a lot of tension, great difficulty or often) = 2 points, response B (some tension, some difficulty or sometimes) = 1 point and response C (no tension, no difficulty or never) = 0 points. The eight items were summed to produce a total score ranging from 0 to 16. A total score ≥ 5 indicated probable intimate partner violence during the preceding 12 months. Internal consistency was assessed using Cronbach's alpha.

Patterns of violence were described using the direct WAST items: item 6 for physical abuse, item 7 for emotional abuse and item 8 for sexual abuse. Responses of often or sometimes were classified as exposure, while never was classified as no exposure. Item 4, which asks

whether arguments resulted in hitting, kicking or pushing, was reported separately.

Statistical analysis

Data were analysed using IBM SPSS Statistics version 25.0. Categorical variables were summarised using frequencies and percentages, whereas continuous variables were summarised using means and standard deviations or medians with interquartile ranges, depending on data distribution.

Associations between participant characteristics and intimate partner violence were initially examined using Pearson's chi-square test. Fisher's exact test or the Fisher-Freeman-Halton Monte Carlo exact test was used when expected cell frequencies were sparse.

Variables associated with IPV at $p < 0.20$ during bivariate analysis, together with age and educational attainment because of their established relevance, were entered into a multivariable binary logistic regression model. Current relationship status was excluded from the final model because it overlapped conceptually with relationship history and contained a sparse "Other" category.

Adjusted odds ratios (AORs) and corresponding 95% confidence intervals (95% CIs) were reported. Statistical significance was defined as $p < 0.05$.

Model performance was assessed using the Hosmer-Lemeshow goodness-of-fit test, Nagelkerke's coefficient of determination (R^2), overall classification accuracy and the area under the receiver operating characteristic (ROC) curve.

Complete-case analysis was performed for regression modelling. Participants with missing values for any variables included in the final multivariable model were excluded from that analysis.

Ethical considerations

Ethical approval was obtained from the Federal University Teaching Hospital, Lafia Health Research Ethics Committee before commencement of the study with approval number FUTHREC/573.

Written informed consent was obtained from all participants before enrolment. Participation was voluntary, and respondents were informed of their right to withdraw at any stage without prejudice to their ongoing care. Interviews were conducted in private to ensure confidentiality, and all data were anonymised before analysis. Participants identified as experiencing severe intimate partner violence were offered counselling and referred to the hospital's mental health and social support services in accordance with institutional protocols.

RESULTS

Table 1: Socio-demographic, Relationship, and Clinical Characteristics of HIV-positive Women Accessing Care at FUTH Lafia (N = 296)

Characteristic	Frequency, n	Percentage, %
Age, mean $\pm$ SD, years	43.9 $\pm$ 11.1	—
Age range, years	18–69	—
Age group		
18–24 years	12	4.1
25–34 years	35	11.8
35–44 years	105	35.5
45–54 years	89	30.1
≥ 55 years	55	18.6
Religion		
Christianity	196	66.2
Islam	98	33.1
Other	2	0.7
Educational attainment (n = 292)		
No formal education	69	23.6
Primary	50	17.1
Secondary	60	20.5
Post-secondary (ND/NCE)	85	29.1
Tertiary (HND/BSc and above)	28	9.6
Employment status (n = 295)		
Employed	64	21.7
Unemployed	231	78.3
In a relationship at HIV diagnosis		
Yes	247	83.4
No	49	16.6
Currently in a relationship		
Yes	251	84.8
No	44	14.9
Other	1	0.3
Same partner since HIV diagnosis (n = 281)		
Yes	230	81.9
No	51	18.1
Partner aware of HIV status (n = 285)		
Yes	249	87.4
No	36	12.6
Partner gainfully employed (n = 272)		
Yes	91	33.5
No	179	65.8
Other	2	0.7
Number of children, median (IQR)	3 (2–5)	—
Duration since HIV diagnosis, median (IQR), years	10 (5–14)	—
Current ART regimen (n = 294)		
TLD	236	80.3
Other regimen	58	19.7
Other medical condition		
None	278	93.9
Present	18	6.1

Note: Percentages were calculated using participants with available information for each variable. ART, antiretroviral therapy; BSc, Bachelor of Science; HND, Higher National Diploma; IQR, interquartile range; NCE, Nigeria Certificate in Education; ND, National Diploma; SD, standard deviation; TLD, tenofovir/lamivudine/dolutegravir.

Table 2: Prevalence and pattern of intimate partner violence (n = 288)

Measure	Category	Frequency, n	Percentage, %
Overall IPV screening status	Positive	151	52.4
	Negative	137	47.6
WAST total score	Mean $\pm$ SD	4.57 $\pm$ 4.13	—
	Median (IQR)	5 (0–7)	—
	Range	0–16	—
Pattern of violence	Emotional abuse	127	44.1
	Physical abuse	122	42.4
	Sexual abuse	66	22.9
	Hitting, kicking or pushing during arguments	146	50.7

Note: The official WAST scoring system was used: response A = 2, B = 1 and C = 0, giving a total score of 0–16. A total score ≥ 5 indicated probable IPV during the preceding 12 months. Emotional, physical and sexual abuse were determined from WAST items 7, 6 and 8, respectively. The eight-item WAST demonstrated excellent internal consistency in this sample (Cronbach's $\alpha = 0.927$). IPV, intimate partner violence; IQR, interquartile range; SD, standard deviation; WAST, Women Abuse Screening Tool

Table 3: Distribution of responses to individual Women Abuse Screening Tool items (n = 288)

WAST item	Often/high tension or difficulty, n (%)	Sometimes/some tension or difficulty, n (%)	Never/no tension or difficulty, n (%)
1. Relationship tension	20 (6.9)	139 (48.3)	129 (44.8)
2. Difficulty resolving arguments	32 (11.1)	144 (50.0)	112 (38.9)
3. Feeling put down or bad about oneself	39 (13.5)	121 (42.0)	128 (44.4)
4. Hitting, kicking or pushing during arguments	20 (6.9)	126 (43.8)	142 (49.3)
5. Feeling frightened by partner	20 (6.9)	131 (45.5)	137 (47.6)
6. Physical abuse	24 (8.3)	98 (34.0)	166 (57.6)
7. Emotional abuse	24 (8.3)	103 (35.8)	161 (55.9)
8. Sexual abuse	20 (6.9)	46 (16.0)	222 (77.1)

Note: For items 1 and 2, responses represent the degree of relationship tension and difficulty resolving arguments. For items 3–8, the response categories are often, sometimes and never.

Table 4: Bivariate associations with intimate partner violence among participants with complete WAST data (maximum n = 288)

Characteristic	IPV present, n (%)	IPV absent, n (%)	χ^2	p-value
Age group			10.53	0.032
18–24 years	2 (16.7)	10 (83.3)		
25–34 years	21 (65.6)	11 (34.4)		
35–44 years	58 (57.4)	43 (42.6)		
45–54 years	45 (51.1)	43 (48.9)		
≥ 55 years	25 (45.5)	30 (54.5)		
Religion			—	0.390†
Christianity	102 (53.7)	88 (46.3)		
Islam	49 (51.0)	47 (49.0)		
Other	0 (0.0)	2 (100.0)		
Educational attainment			15.18	0.004
No formal education	32 (47.1)	36 (52.9)		
Primary	38 (76.0)	12 (24.0)		
Secondary	25 (43.1)	33 (56.9)		
Post-secondary (ND/NCE)	38 (46.9)	43 (53.1)		
Tertiary (HND/BSc and above)	16 (57.1)	12 (42.9)		
Employment status			2.06	0.151
Employed	28 (43.8)	36 (56.2)		
Unemployed	123 (54.9)	101 (45.1)		
In a relationship at HIV diagnosis			3.92	0.048
Yes	134 (55.1)	109 (44.9)		
No	17 (37.8)	28 (62.2)		
Currently in a relationship			—	0.224†

Characteristic	IPV present, n (%)	IPV absent, n (%)	χ^2	p-value
Yes	134 (53.8)	115 (46.2)		
No	16 (42.1)	22 (57.9)		
Other	1 (100.0)	0 (0.0)		
Same partner since HIV diagnosis			4.05	0.044
Yes	130 (56.8)	99 (43.2)		
No	19 (39.6)	29 (60.4)		
Partner aware of HIV status			0.44	0.508
Yes	128 (51.4)	121 (48.6)		
No	19 (59.4)	13 (40.6)		
Partner gainfully employed			—	0.652†
Yes	47 (51.6)	44 (48.4)		
No	93 (52.2)	85 (47.8)		
Other	2 (100.0)	0 (0.0)		
Duration since HIV diagnosis			8.51	0.037
<5 years	25 (59.5)	17 (40.5)		
5–9 years	47 (50.5)	46 (49.5)		
10–14 years	55 (59.8)	37 (40.2)		
≥15 years	21 (36.8)	36 (63.2)		
Number of children			5.63	0.131
None	10 (38.5)	16 (61.5)		
1–2	40 (47.6)	44 (52.4)		
3–4	46 (52.9)	41 (47.1)		
≥5	54 (61.4)	34 (38.6)		
Current ART regimen			4.20	0.040
TLD	130 (55.3)	105 (44.7)		
Other regimen	20 (38.5)	32 (61.5)		
Other medical condition			0.21	0.648
None	143 (53.0)	127 (47.0)		
Present	8 (44.4)	10 (55.6)		

Note: Percentages were calculated within rows. Pearson's chi-square test was used unless expected cell counts were sparse. †Fisher–Freeman–Halton Monte Carlo exact test. Variable-specific missing observations were excluded. ART, antiretroviral therapy; BSc, Bachelor of Science; HND, Higher National Diploma; IPV, intimate partner violence; NCE, Nigeria Certificate in Education; ND, National Diploma; TLD, tenofovir/lamivudine/dolutegravir; WAST, Women Abuse Screening Tool.

Table 5: Multivariable logistic regression of factors associated with intimate partner violence (complete-case n = 268)

Variable	B	SE	Wald	p-value	AOR	95% CI
Constant	0.515	1.016	0.26	0.613	1.67	0.23–12.26
Age group (reference: 35–44 years)						
18–24 years	−1.598	1.161	1.89	0.169	0.20	0.02–1.97
25–34 years	1.367	0.596	5.27	0.022	3.92	1.22–12.61
45–54 years	−0.561	0.367	2.34	0.126	0.57	0.28–1.17
≥55 years	−1.599	0.578	7.65	0.006	0.20	0.07–0.63
Educational attainment (reference: tertiary)						
No formal education	−0.632	0.614	1.06	0.304	0.53	0.16–1.77
Primary	0.407	0.628	0.42	0.517	1.50	0.44–5.15
Secondary	−1.091	0.621	3.08	0.079	0.34	0.10–1.14
Post-secondary (ND/NCE)	−0.750	0.550	1.86	0.172	0.47	0.16–1.39
Employment status (reference: employed)						
Unemployed	0.594	0.413	2.07	0.150	1.81	0.81–4.07
Relationship at HIV diagnosis (reference: no)						
Yes	−0.092	0.503	0.03	0.855	0.91	0.34–2.44
Duration since HIV diagnosis (reference: <5 years)						
5–9 years	−0.046	0.456	0.01	0.919	0.95	0.39–2.33
10–14 years	0.492	0.514	0.92	0.339	1.64	0.60–4.48
≥15 years	−0.029	0.617	0.00	0.963	0.97	0.29–3.25

Variable	B	SE	Wald	p-value	AOR	95% CI
Number of children (reference: none)						
1–2	–1.653	0.876	3.56	0.059	0.19	0.03–1.07
3–4	–1.523	0.870	3.07	0.080	0.22	0.04–1.20
≥5	–0.522	0.919	0.32	0.570	0.59	0.10–3.59
ART regimen (reference: TLD)						
Other regimen	–0.713	0.382	3.49	0.062	0.49	0.23–1.04
Same partner since HIV diagnosis (reference: no)						
Yes	1.536	0.576	7.11	0.008	4.65	1.50–14.37

Note: Variables with bivariate $p < 0.20$ and clinically relevant age and educational variables were included. Current relationship status was excluded because it overlaps logically with relationship history and contained a sparse “Other” category. AOR, adjusted odds ratio; ART, antiretroviral therapy; CI, confidence interval; NCE, Nigeria Certificate in Education; ND, National Diploma; SE, standard error; TLD, tenofovir/lamivudine/dolutegravir.

Table 6: Multivariable logistic-regression model diagnostics

Model statistic	Result
Number included in regression	268
IPV-positive events	142
Likelihood-ratio χ^2 (df)	53.40 (18)
Model p-value	<0.001
Cox–Snell R^2	0.181
Nagelkerke R^2	0.241
Hosmer–Lemeshow χ^2 (df)	14.28 (8)
Hosmer–Lemeshow p-value	0.075
Classification accuracy	71.6%
Area under the ROC curve	0.761

Note: The Hosmer–Lemeshow test did not indicate statistically significant lack of fit at $p < 0.05$. The area under the ROC curve indicated acceptable discrimination. IPV, intimate partner violence; ROC, receiver operating characteristic.

RESULTS NARRATIVE

Participant characteristics

Following removal of nine exact duplicate records and one participant aged below 18 years, 296 eligible unique participants remained for analysis. Their mean age was 43.9 ± 11.1 years, with ages ranging from 18 to 69 years. Women aged 35–44 years constituted the largest group (35.5%), followed by those aged 45–54 years (30.1%). Approximately two-thirds were Christians (66.2%), while 78.3% were unemployed. Most participants had been in a relationship when HIV was diagnosed (83.4%), were currently in a relationship (84.8%) and remained with the same partner since HIV diagnosis (81.9% of those with available information). The median number of children was 3 (IQR 2–5), while the median duration since HIV diagnosis was 10 years (IQR 5–14). Most participants were receiving a TLD-based regimen (80.3%) and 6.1% had another documented medical condition (Table 1).

Prevalence and pattern of intimate partner violence

Of the 296 eligible participants, 288 had complete responses to all eight WAST items. Among these, 151 screened positive for probable IPV, giving a 12-month prevalence of 52.4%. The mean official WAST score was 4.57 ± 4.13 and the median score was 5 (IQR 0–7). Emotional abuse was reported by 127 women (44.1%), physical abuse by 122 (42.4%) and sexual abuse by 66 (22.9%). In addition, 146 women (50.7%) reported that arguments sometimes or often

resulted in hitting, kicking or pushing. The WAST demonstrated excellent internal consistency (Cronbach’s $\alpha = 0.927$) (Tables 2 and 3).

Bivariate associations with intimate partner violence

IPV prevalence differed significantly across age groups ($p = 0.032$), educational categories ($p = 0.004$), relationship status at HIV diagnosis ($p = 0.048$), continuity with the same partner since diagnosis ($p = 0.044$), duration since HIV diagnosis ($p = 0.037$) and ART regimen ($p = 0.040$). The highest proportions were observed among women aged 25–34 years (65.6%), those with primary education (76.0%) and women with five or more children (61.4%), although number of children did not reach statistical significance ($p = 0.131$). Religion, employment status, current relationship status, partner awareness of HIV status, partner employment and medical comorbidity were not significantly associated with IPV (Table 4).

Multivariable analysis

In the complete-case multivariable model ($n = 268$), women aged 25–34 years had approximately four times the adjusted odds of IPV compared with women aged 35–44 years (AOR=3.92; 95% CI 1.22–12.61; $p = 0.022$). Women aged 55 years or older had substantially lower adjusted odds (AOR=0.20; 95% CI 0.07–0.63; $p = 0.006$). Remaining with the same partner since HIV diagnosis was independently associated with higher odds of IPV (AOR=4.65; 95% CI 1.50–14.37;

$p=0.008$). Educational attainment, employment, relationship status at diagnosis, duration since diagnosis, number of children and ART regimen were not independently associated with IPV. The model was statistically significant, $\chi^2(18)=53.40$, $p<0.001$, with Nagelkerke $R^2=0.241$. Calibration was acceptable (Hosmer–Lemeshow $p=0.075$), and discrimination was acceptable (area under the ROC curve=0.761) (Tables 5 and 6).

DISCUSSION

This study found that slightly more than half of women living with HIV attending a tertiary HIV clinic in North-Central Nigeria screened positive for probable IPV during the preceding 12 months. Emotional abuse was the most frequently reported direct form of abuse, followed closely by physical abuse, while approximately one in five participants reported sexual abuse. After adjustment, age and continuity with the same partner since HIV diagnosis remained independently associated with IPV. The corrected findings demonstrate a substantial burden of violence within HIV care while also showing that several apparent bivariate relationships, particularly educational attainment, duration since diagnosis and ART regimen, were not independent after accounting for other factors.

The prevalence of 52.4% is higher than the approximately one-third prevalence commonly reported for women in the general population and is consistent with evidence that people living with HIV experience a particularly high burden of partner violence.^{6–8,11} Systematic and scoping reviews have documented wide variation in IPV prevalence among women living with HIV, reflecting differences in study setting, recall period, measurement tool and the forms of violence included.^{11,12,29} The present estimate should therefore be interpreted as a WAST screening prevalence rather than a clinical diagnosis or a directly interchangeable estimate with studies restricted to physical and sexual violence.

The estimate is also broadly consistent with Nigerian evidence showing that IPV is common among women receiving HIV care, although published estimates differ across regions and instruments.^{19,20} The comparatively high prevalence in this study may reflect the WAST's inclusion of relationship tension and emotional abuse, the 12-month recall period and the concentration of participants in a tertiary HIV clinic. It may also reflect the interacting effects of economic dependence, HIV-related stigma, fear of disclosure, gendered power inequalities and limited access to confidential support.^{9,10,12} These factors can make violence difficult to disclose and may simultaneously affect treatment engagement and psychological wellbeing.

Emotional abuse was the most common direct subtype, affecting 44.1% of participants. This accords

with reports that psychological and emotional violence often exceeds physical or sexual violence among women living with HIV.^{11,12} Emotional abuse may include humiliation, threats, intimidation, blame related to HIV status and controlling behaviour. Although it may leave no visible injury, it is associated with depression, anxiety, traumatic stress and poorer quality of life, which may subsequently compromise engagement with HIV care.^{9,14} The finding supports comprehensive enquiry that does not limit assessment to physical assault.

Physical abuse was reported directly by 42.4% of respondents, while 50.7% indicated that arguments sometimes or often involved hitting, kicking or pushing. The difference between these items illustrates that some respondents may report violent acts without labelling their experiences as “physical abuse.” Behaviourally specific questions may therefore identify violence that global labels miss. Sexual abuse was less frequently reported but remained substantial at 22.9%. Sexual coercion may be particularly under-reported because of shame, fear of relationship disruption, prevailing marital norms and concern about retaliation.^{6,8} These findings support the use of private, behaviourally specific and trauma-informed assessment within HIV services.

Age demonstrated a non-linear association with IPV. Women aged 25–34 years had almost four times the adjusted odds of IPV compared with those aged 35–44 years, whereas women aged 55 years or older had approximately 80% lower odds. Greater vulnerability among younger women has been attributed to lower economic autonomy, unstable relationships, unequal negotiating power and stronger reproductive or social expectations.^{11,15,21} Older women may have greater relationship authority, financial independence or social support and may be less exposed to current partnerships. However, age may also represent differences in relationship duration, disclosure experiences and willingness to report violence; the cross-sectional design does not establish the responsible mechanism.

Educational attainment was significantly associated with IPV at the bivariate level, with the highest prevalence among women with primary education, but it was not independently associated after adjustment. This differs from studies in which higher education appeared protective through improved economic opportunity, awareness and bargaining power.^{21,22} The loss of significance in the adjusted model suggests that education in this sample may overlap with age, employment, relationship history or other unmeasured socioeconomic factors. It should therefore not be presented as an independent predictor. The wide confidence intervals also indicate limited precision within some educational categories.

Remaining with the same partner since HIV diagnosis was the strongest independent correlate, with more than fourfold higher adjusted odds of IPV. This

association should not be interpreted as evidence that relationship continuity causes violence. It may instead indicate longer cumulative exposure to an abusive relationship, financial or childcare constraints that limit separation, fear of stigma or abandonment, or difficulties negotiating safety following HIV disclosure.^{26,30} The variable may also capture relationship duration imperfectly. Longitudinal research incorporating the timing of HIV diagnosis, disclosure, onset of violence and relationship transitions is required to clarify this finding.

ART regimen was associated with IPV in the unadjusted analysis but not after multivariable adjustment. The borderline adjusted association should not be interpreted as a protective pharmacological effect of non-TLD regimens. Regimen type may reflect treatment duration, previous treatment failure, historical prescribing practices, age or comorbidity. Similarly, duration since HIV diagnosis and number of children were not independently associated after adjustment. These results illustrate the importance of separating crude group differences from independently supported associations.

The findings have practical implications for HIV services. IPV assessment should be integrated with a safe response system rather than implemented as an isolated screening exercise. Services require private enquiry, trained personnel, immediate safety assessment, confidential documentation and functioning referral pathways for psychological, social, legal and safeguarding support [6, 27, 31]. Particular attention may be warranted for younger women and those describing prolonged or unsafe relationships, but selective assessment based only on demographic risk would miss many affected women.

This study has several strengths. It used a recognised eight-item screening instrument, applied the scoring method specified in the administered questionnaire and demonstrated excellent internal consistency. The analysis removed exact duplicate records, used behaviour-specific subtype items, applied exact tests to sparse contingency tables and reported regression calibration and discrimination. The study also contributes evidence from North-Central Nigeria, a setting less represented in the literature on IPV among women living with HIV.

Several limitations should be considered. The cross-sectional design precludes causal or temporal inference. IPV was self-reported and may have been under-reported because of recall error, fear, stigma and social desirability, especially for sexual abuse. Clinic attendees may differ from women who have disengaged from HIV care, while the single-centre design limits generalisability. Eight eligible participants had incomplete WAST data and 28 were excluded from the complete-case regression. Important determinants,

including partner alcohol use, controlling behaviour, household income, HIV disclosure circumstances and childhood exposure to violence, were unavailable, leaving potential residual confounding. Finally, the WAST is a screening instrument; a positive result indicates probable IPV rather than a clinical or legal determination.

CONCLUSION

Intimate partner violence was common among women living with HIV attending a tertiary hospital in North-Central Nigeria, with 52.4% screening positive during the preceding 12 months. Emotional and physical abuse were particularly prominent. Women aged 25–34 years and those who remained with the same partner since HIV diagnosis had higher adjusted odds of IPV, whereas women aged 55 years or older had lower odds. HIV services should incorporate confidential, trauma-informed enquiry and multidisciplinary referral pathways while avoiding causal interpretation of the observed associations. Longitudinal multicentre studies incorporating relationship dynamics, HIV disclosure, partner behaviour and treatment outcomes are needed.

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