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Research Article

Sociodemographic Characteristics of Methicillin-Resistant *Staphylococcus aureus* Colonisation Among HIV/AIDS Clients of a Public Hospital in South-South Nigeria

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Abstract

Methicillin-resistant *Staphylococcus aureus* (MRSA) poses a growing threat among people living with HIV/AIDS (PLWH) due to immunological vulnerability, frequent healthcare exposure, and compromised skin integrity. Despite a high HIV burden in Edo State, Nigeria, no data characterising MRSA colonisation in PLWH exist in the State. This study characterised MRSA colonisation among HIV/AIDS Clients of Irrua Specialist Teaching Hospital (ISTH). This is a cross-sectional hospital-based study, with 176 PLWH on ART for ≥6 months systematically enrolled. Three rayon swabs per participant were collected from the nasal vestibule, axillary fold, and groin. MRSA was confirmed by cefoxitin disc diffusion per Clinical Laboratory Standard Institute guidelines. Frequencies, proportions, chi-square, Fisher's exact test, and Kruskal-Wallis H were applied. Significance was set at $p<0.05$. Of 176 participants, 131 (74.43%) were MRSA-positive, yielding 230 isolates from 528 specimens (43.6% specimen-level positivity). Females predominates, constituted 75.0% (n=132) with overall mean age of 41.78±12.9 years. Majority were married (71.0%), had secondary education (51.1%), and were unskilled workers (65.3%). The groin yielded highest MRSA-positive swabs (94/176, 53.4%), followed by nasal (71/176, 40.3%) and axillary (65/176, 36.9%). MRSA carriage was significantly associated with age group (χ^2=9.900, p=0.042), occupation (χ^2=7.173, p=0.047), WHO clinical stage (χ^2=3.663, p=0.040), and CD4 count category (χ^2=3.824, p=0.047). The median CD4+ count was 425 cells/μL; participants with CD4 <200 had the highest MRSA positivity (86.5%). MRSA colonisation was high among PLWH at ISTH. The groin-predominant distribution challenges conventional nasal-centric screening paradigms. CD4-stratified MRSA rates and WHO stage associations indicate that immunosuppression contributes to MRSA carriage, supporting targeted screening of the most immunocompromised PLWH.

Keywords

Methicillin-resistant *Staphylococcus aureus*, HIV/AIDS, PLWH, Colonisation Anatomical Site, Nigeria, Multi-site Carriage

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1. Introduction

Staphylococcus aureus is among the most ecologically versatile and clinically important human pathogens, simultaneously occupying commensal and pathogenic roles across a broad spectrum of hosts. [1] In its methicillin-resistant form — methicillin-resistant *S. aureus* (MRSA), it represents one of the foremost global antimicrobial resistance challenges of the twenty-first century. [2, 3] MRSA infects and colonises millions of individuals annually, causes bacteraemia, pneumonia, endocarditis, osteomyelitis, and deep-tissue infections, and is associated with attributable mortality that dwarfs many other drug-resistant pathogens combined. [4, 5].

People living with HIV/AIDS (PLWH) occupy an epidemiologically distinct and disproportionately burdened position within the MRSA landscape. [6, 7] At least four intersecting biological and social mechanisms explain this predisposition. First, progressive CD4+ T-lymphocyte depletion impairs both innate cutaneous immunity and adaptive humoral responses, diminishing the host's capacity to clear colonising *S. aureus* from skin and mucosal surfaces. [8, 9] Also, the structural disruption of epidermal barrier function, observed across the spectrum of HIV-associated dermatological conditions, including seborrhoeic dermatitis, psoriasis, prurigo, and herpes-related ulcerations, provides anatomical portals for *S. aureus* entry and colonisation. [10, 11] Furthermore, the frequency and duration of healthcare system contacts among PLWH, encompassing ART clinic visits, hospitalisations, invasive procedures, and laboratory monitoring, create repeated and sustained exposure to healthcare-associated MRSA (HA-MRSA) reservoirs. [11, 12] Likewise, the broad deployment of cotrimoxazole prophylaxis and other antimicrobials in HIV care creates selective antimicrobial pressure favouring resistant staphylococcal strains. [13].

Globally, MRSA colonisation rates in PLWH substantially exceed those in HIV-negative counterparts. Systematic reviews and large cohort studies from India report higher MRSA colonisation rates among HIV-positive outpatients. [14, 15].

Nigeria bears a dual burden as sub-Saharan Africa's most populous country and its largest HIV-affected nation: the Nigerian HIV/AIDS Indicator and Impact Survey (NAIIS) 2018 estimated 1.9 million Nigerians living with HIV, with an adult prevalence of 1.4%. [16] Edo State, in the South-South geopolitical zone, has historically had among Nigeria's highest HIV prevalence rates, estimated at 3.1-3.5% in successive national surveys. [17, 18] Irrua Specialist Teaching Hospital (ISTH) in Irrua, Edo State, operates one of the South-South zone's largest ART programmes, serving over 7,900 PLWH annually as documented in the 2019 clinic attendance registry. This study therefore aimed at determining Prevalence and Sociodemographic characteristics of Methicillin-Resistant *Staphylococcus aureus* colonisation among PLWH attending the Antiretroviral Therapy Clinic of Irrua Specialist Teaching hospital, Edo State, Nigeria.

2. Materials and Methods

2.1. Study Site and Clinical Context

This study was conducted at the Department of Medical Microbiology and Parasitology, Irrua Specialist Teaching Hospital (ISTH), Irrua, Edo State, Nigeria. ISTH, formerly known as Otibhor Okhae Teaching Hospital, was established by Decree 92 of 1993 as a tertiary health institution mandated to deliver specialist care to Edo State and the broader South-South region. The hospital operates with over 100 specialist physicians and approximately 2,500 support staff. The Medical Microbiology Laboratory holds ISO 9001 certification.

The ISTH HIV/AIDS programme commenced in 2004 as a Prevention of Mother-to-Child Transmission (PMTCT) outlet under the Global HIV/AIDS Initiative Nigeria (GHAIN) and expanded into a comprehensive ART programme in 2005 under the National AIDS and STDs Control Programme (NASCP), with institutional support from the Institute of Human Virology Nigeria (IHVN). Between January and December 2019, the ART clinic recorded 7,903 patient attendances (new: 127; continuing: 7,776), with an average monthly attendance of 747.75 patients. This active patient registry constituted the sampling frame.

2.2. Study Design and Period

A cross-sectional, hospital-based descriptive study was carried out over three months. This design is appropriate for estimating disease prevalence and characterising the distribution of clinical and sociodemographic variables at a defined point in time among PLWH attending a single tertiary-care ART facility.

2.3. Ethical Considerations

Ethical approval was obtained from the Ethics and Research Committee of Irrua Specialist Teaching Hospital before commencement. Written informed consent was obtained from all adult participants before enrolment. For paediatric participants (age <18 years), written parental/guardian consent and child assent were obtained. All participants were interviewed in a private, screened examination room to ensure confidentiality and minimise stigmatisation. Participant identities were replaced with numeric codes throughout data collection and analysis. No personal identifiers were retained in the research database. All COVID-19 infection control measures were maintained throughout the study period. Research costs were fully borne by the investigators.

2.4. Eligibility Criteria

2.4.1. Inclusion Criteria

PLWH aged 2 years and above, attending the ART clinic, and

on antiretroviral therapy for six months or longer, regardless of sex.

2.4.2. Exclusion Criteria

Patients on ART for less than six months at the time of enrolment. This cut-off was applied to ensure a minimum period of immunological reconstitution and to exclude early-treatment immune dysregulation that might confound MRSA acquisition risk.

2.5. Sample Size and Sampling

Sample size was calculated using the standard formula for proportions in large populations (N > 10,000): $N = Z^2pq/d^2$. Using Z = 1.96 (95% confidence interval), p = 0.161 (prevalence of MRSA in PLWH reported from Port Harcourt, Nigeria,[19] used as the best available Nigerian estimate), q = 0.839, and d = 0.05 (precision), the calculation yielded N = 207.6. An additional 10% was added to account for attrition (n = 20.76), resulting in a minimum sample size of 228.36, rounded up to 230.

Participants were recruited by systematic random sampling with a k-value of 5.4, calculated from the average number of ART clinic patients per three-month study period (approximately 1,248) divided by the target sample size (230). In practice, every fifth eligible patient was enrolled. The starting point was selected by ballot (number 3), and subsequent patients were selected at five-patient intervals across four clinic days per week.

2.6. Data Collection Instruments

A structured, pre-tested questionnaire was administered by the researcher and two trained research assistants. The questionnaire captured: (i) sociodemographic data (age, sex, ethnicity, religion, marital status, highest educational attainment, occupation, dwelling type); (ii) clinical data (most recent CD4+ count from clinic records, current and prior medications including cotrimoxazole, history of hospitalisation within 6 and 12 months, underlying comorbidities, use of invasive devices); and (iii) behavioural risk factor data (frequency of nose-picking, nail-keeping practices, hand hygiene when sneezing, skin infection history at the time of visit). All completed questionnaires were reviewed for completeness by the principal investigator before data entry.

2.7. Specimen Collection

After written informed consent, three rayon swabs per participant were collected from distinct anatomical sites by the investigator following standardised protocols:

1) Nasal swab: the swab was inserted approximately 1 cm into each nasal vestibule and rotated through two complete revolutions in contact with the nasal mucosa, applied to both nares.
2) Axillary swab: the swab was rotated in a zig-zag pattern for 10 seconds from the anterior to the posterior lateral axillary line of each axillary fold.
3) Groin swab: the swab was rotated in a zig-zag pattern for 10 seconds from the anterolateral to the anteromedial aspect of each groin crease. A fresh swab was used for each anatomical site to prevent cross-contamination.

2.8. Laboratory Methods

Swab specimens were transported to the Medical Microbiology Laboratory in Stuart's transport medium and inoculated onto mannitol salt agar (MSA) within two hours of collection. Plates were incubated aerobically at 35 ℃ for 18-24 hours. Colonies producing golden-yellow pigment on Mannitol Salt Agar (MSA) were subjected to Gram staining, catalase testing, and coagulase testing (both slide and tube methods) to confirm *S. aureus* identity. Confirmed *S. aureus* isolates were then tested for MRSA by the modified Kirby-Bauer cefoxitin disc diffusion method per Clinical Laboratory Standard Institute (CLSI) 2021 guidelines, using cefoxitin discs (8 µg). An inhibition zone diameter ≤21 mm was classified as MRSA; ≥22 mm was classified as methicillin-susceptible *S. aureus* (MSSA). Quality control used *S. aureus* ATCC 29213 (MSSA) and *S. aureus* ATCC 700699 (MRSA) as negative and positive controls respectively.

2.9. Statistical Analysis

All data were entered into Microsoft Excel 2019, cleaned, and transferred to SPSS version 27.0 (IBM Corp., Armonk, NY) for analysis. Categorical variables were summarised as frequencies and percentages. Continuous variables were assessed for normality using the Shapiro-Wilk test; both age (W=0.971, p<0.001) and CD4+ count (W=0.959, p<0.001) were non-normally distributed and are reported as median and interquartile range (IQR). The Mann-Whitney U test was applied for two-group comparisons and the Kruskal-Wallis H test for multi-group comparisons of continuous variables. Statistical significance was set at $\alpha = 0.05$ (two-tailed).

3. Results

3.1. MRSA Prevalence

Of 176 participants, 131 (74.43%) were MRSA-positive. Of the 528 specimens processed, 230 (43.6%) yielded MRSA, contributing 230 isolates from 131 positive participants. The MRSA-negative rate was 25.57% (45/176).

3.2. Sociodemographic Characteristics

Table 1 presents the sociodemographic profile of all 176 participants. Females constituted 75.0% (n=132) and males 25.0% (n=44). The mean age was 41.78 ±12.9 years. The most represented age groups were 41-50 years (26.7%, n=47) and

31-40 years (25.6%, n=45). Christianity was the dominant religion (89.8%, n=158). The majority were married (71.0%, n=125), had secondary education (51.1%, n=90), and were unskilled workers (65.3%, n=115). Suburban dwelling was most prevalent (52.8%, n=93).

Table 1. *Sociodemographic Characteristics of All Participants (N=176).*

Variable	Frequency (n)	Percentage (%)
Age group (years)		
≤20	18	10.2
21-30	14	8.0
31-40	45	25.6
41-50	47	26.7
51-60	40	22.7
>60	12	6.8
Mean ±SD	*41.78 ±12.9 years*	
Sex		
Female	132	75.0
Male	44	25.0
Religion		
Christianity	158	89.8
Islam	18	10.2
Marital status		
Married	125	71.0
Single	31	17.6
Widowed	15	8.5
Divorced/Separated	5	2.8
Level of education		
Secondary	90	51.1
Primary	45	25.6
Tertiary	36	20.5
No formal education	5	2.8
Occupation		
Unskilled	115	65.3
Skilled	31	17.6
Professional	19	10.8
None/Not applicable	11	6.3
Residential area		
Suburban	93	52.8
Rural	57	32.4
Urban	26	14.8

N=176 participants. All percentages are participant-level.

3.3. Clinical and Risk Factor Profile

Table 2 presents clinical and behavioural characteristics. The majority had no hospitalisation in the last 12 months (72.7%, n=128); 27.3% (n=48) had been hospitalised and 4.0% (n=7) had undergone surgery. Cotrimoxazole was used by 84.7% (n=149). Invasive device use was reported by 36.9% (n=65), prior antibiotic use by 30.7% (n=54), underlying disease by 27.8% (n=49), and active skin infection by 14.8% (n=26). Occasional nose-picking was most common (53.4%, n=94), with habitual picking in 27.8% (n=49).

Table 2. *Clinical and Behavioural Characteristics of All Participants (N=176).*

Variable	Frequency (n)	Percentage (%)
Hospitalisation (last 12 months)		
Yes	48	27.3
No	128	72.7
Surgery (last 12 months)		
Yes	7	4.0
No	169	96.0
Nose picking		
Never	33	18.8
Occasional	94	53.4
Always	49	27.8
Keeping of long nails		
Yes	31	17.6
No	145	82.4
Use of invasive device		
Yes	65	36.9
No	111	63.1
Underlying disease		
Yes	49	27.8
No	127	72.2
Hand covering while sneezing		
Yes	127	71.0
No	51	29.0
Previous use of antibiotics		
Yes	54	30.7
No	122	69.3
Skin infection at visit		
Yes	26	14.8
No	150	85.2
On any medication		
Yes	51	29.0
No	125	71.0

Variable	Frequency (n)	Percentage (%)
Current Cotrimoxazole use		
Yes	149	84.7
No	27	15.3

N=176 participants. All percentages are participant-level.

3.4. MRSA Prevalence by Anatomical Site

Of the 528 specimens processed, 230 (43.6%) were MRSA-positive. Table 3 presents site-specific positivity. The groin was the most frequently MRSA-positive site (94/176, 53.4%), followed by the nasal cavity (71/176, 40.3%) and axilla (65/176, 36.9%). At the participant level, 131/176 (74.43%) carried MRSA at one or more sites.

Table 3. *MRSA Prevalence by Anatomical Site (N=176 Participants; 528 Specimens).*

	Groin	Nasal	Axilla
Specimen-level positivity			
MRSA-positive specimens (n)	94	71	65
% of 176 specimens per site	53.4%	40.3%	36.9%
Participant-level prevalence (N=176)			
Overall MRSA prevalence	131/176 = 74.43%		
MRSA-negative participants	45/176 = 25.57%		
Total specimen positivity			
Total MRSA-positive specimens	230/528 = 43.6%		

Specimen-level rates calculated as n positive / 176 (specimens per site). Participant-level prevalence = proportion of 176 participants with ≥1 MRSA-positive swab.

3.5. Association Between MRSA Status and Sociodemographic Characteristics

Table 4 presents the association between MRSA status and sociodemographic variables. MRSA positivity was significantly associated with age group (χ^2=9.900, p=0.042) and occupation (χ^2=7.173, p=0.047). Participants aged 21-30 years had the highest positivity rate (85.7%), while those >60 years had the lowest (50.0%). Among occupational groups, skilled workers had the highest MRSA positivity (90.3%). Sex, marital status, educational level, and residential area were not significantly associated with MRSA status.

Table 4. *Association between MRSA Status and Sociodemographic Characteristics (N=176).*

Variable	MRSA Positive n (%)	MRSA Negative n (%)	χ^2	p-value
Age group (years) χ^2=9.900, p=0.042*				
≤20	10 (55.6)	8 (44.4)		
21-30	12 (85.7)	2 (14.3)		
31-40	36 (80.0)	9 (20.0)		

Variable	MRSA Positive n (%)	MRSA Negative n (%)	χ^2	p-value
41-50	38 (80.9)	9 (19.1)		
51-60	29 (72.6)	11 (27.5)		
>60	6 (50.0)	6 (50.0)		
Sex χ^2=0.249, p=0.618 (NS)				
Male	34 (77.3)	10 (22.7)	0.249	0.618
Female	97 (73.5)	35 (26.5)		
Marital status χ^2=4.163, p=0.244 (NS)				
Single	20 (64.5)	11 (35.5)	4.163	0.244
Married	96 (76.8)	29 (23.2)		
Divorced/Separated	5 (100.0)	0 (0.0)		
Widowed	10 (66.7)	5 (33.3)		
Level of education χ^2=2.072, p=0.558 (NS)				
None	4 (80.0)	1 (20.0)	2.072	0.558
Primary	32 (71.1)	13 (28.9)		
Secondary	65 (72.2)	25 (27.8)		
Tertiary	30 (83.3)	6 (16.7)		
Occupation χ^2=7.173, p=0.047*				
None/Not applicable	7 (63.6)	4 (36.4)	7.173	0.047*
Unskilled	80 (69.6)	35 (30.4)		
Skilled	28 (90.3)	3 (9.7)		
Professional	16 (84.2)	3 (15.8)		
Residential area χ^2=1.126, p=0.570 (NS)				
Rural	40 (70.2)	17 (29.8)	1.126	0.570
Sub-urban	70 (75.3)	23 (24.7)		
Urban	21 (80.8)	5 (19.2)		

* p<0.05. NS=not significant. n=131 MRSA positive; n=45 MRSA negative.

3.6. Association Between MRSA Status and Clinical Characteristics

Table 5 presents associations between MRSA status and clinical variables. No clinical risk factor reached statistical significance, including prior hospitalisation (p=0.778), surgery (p=0.072), nose-picking frequency (p=0.543), long nails (p=0.973), invasive device use (p=0.621), underlying disease (p=0.571), hand covering while sneezing (p=0.692), prior antibiotic use (p=0.942), skin infection (p=0.864), any medication (p=0.131), and cotrimoxazole use (p=0.315).

Table 5. *Association between MRSA Status and Clinical Characteristics (N=176).*

Variable	MRSA Positive n (%)	MRSA Negative n (%)	χ^2	p-value
Hospitalisation (Yes)	35 (72.9)	13 (27.1)	0.080	0.778
Surgery (Yes)	3 (42.9)	4 (57.1)	3.819	0.072

Variable	MRSA Positive n (%)	MRSA Negative n (%)	χ^2	p-value
Nose picking: Never	24 (72.7)	9 (27.3)	1.220	0.543
Nose picking: Occasional	73 (77.7)	21 (22.3)		
Nose picking: Always	34 (69.4)	15 (30.6)		
Long nails (Yes)	23 (74.2)	8 (25.8)	0.001	0.973
Invasive device (Yes)	47 (72.3)	18 (27.7)	0.244	0.621
Underlying disease (Yes)	35 (71.4)	14 (28.6)	0.322	0.571
Hand covering (Yes)	92 (73.6)	33 (26.4)	0.157	0.692
Prior antibiotics (Yes)	40 (74.1)	14 (25.9)	0.005	0.942
Skin infection (Yes)	19 (73.1)	7 (26.9)	0.029	0.864
On medication (Yes)	34 (66.7)	17 (33.3)	2.275	0.131
Cotrimoxazole (Yes)	113 (75.8)	36 (24.2)	1.010	0.315

None of the clinical variables reached significance at α=0.05. Hospitalization and surgery refer to the preceding 12 months.

3.7. Association Between MRSA Status and Immunological Characteristics

Table 6 and Figure 1 present immunological associations. MRSA positivity was significantly associated with WHO clinical stage (χ^2=3.663, p=0.040): positivity rose from 72.6% in WHO stage I to 88.2% in stage II and 100% in stage III. CD4+ count category was also significantly associated with MRSA status (χ^2=3.824, p=0.047): participants with CD4 <200 cells/μL had the highest MRSA positivity rate (86.5%), compared with 73.3% for CD4 201-500 and 69.6% for CD4 >500. Viral load category was not significantly associated with MRSA status (p=0.661).

Table 6. *Association between MRSA Status and Immunological Characteristics (N=176).*

Variable	MRSA Positive n (%)	MRSA Negative n (%)	χ^2	p-value
WHO clinical stage χ^2=3.663, p=0.040*				
Stage I	114 (72.6)	43 (27.4)	3.663	0.040*
Stage II	15 (88.2)	2 (11.8)		
Stage III	2 (100.0)	0 (0.0)		
CD4+ count (cells/μL) χ^2=3.824, p=0.047*				
<200	32 (86.5)	5 (13.5)	3.824	0.047*
201-500	44 (73.3)	16 (26.7)		
>500	55 (69.6)	24 (30.4)		
Viral load (copies/mL) χ^2=0.827, p=0.661 (NS)				
≤20	97 (75.2)	32 (24.8)	0.827	0.661
21-500	22 (68.8)	10 (31.3)		
>500	12 (80.0)	3 (20.0)		

* p<0.05. NS=not significant. WHO stage classification per WHO 2007 criteria.

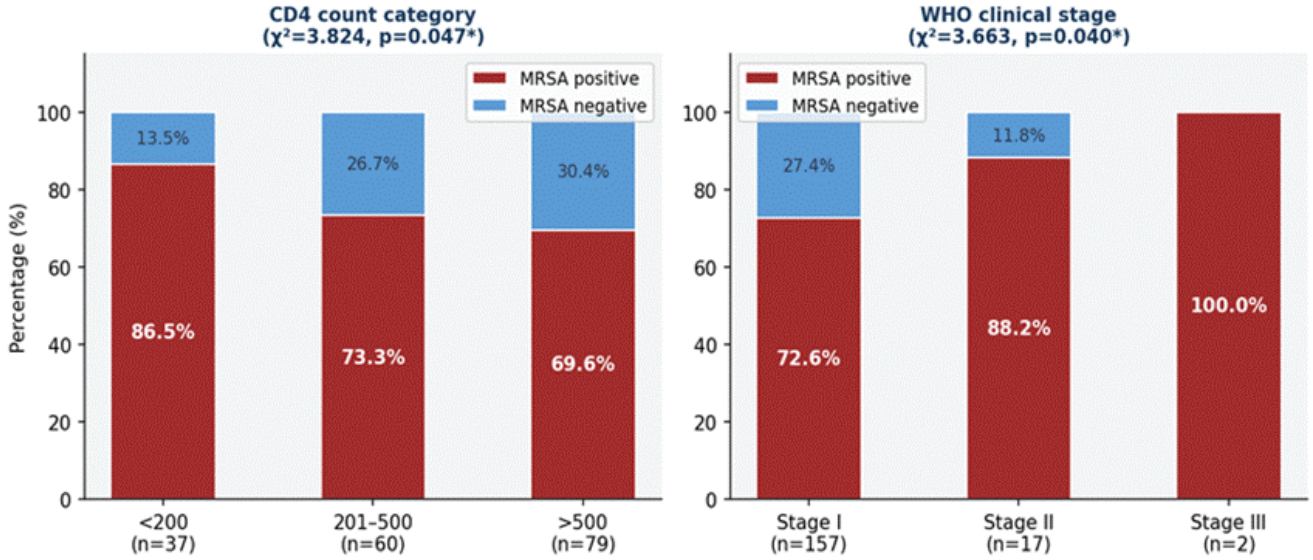

Figure 1. *MRSA positivity by CD4 count category (left) and WHO clinical stage (right). Higher immunosuppression was associated with higher MRSA prevalence.*

4. Discussion

This study establishes an MRSA colonisation prevalence of 74.43% (131/176) among PLWH attending the ISTH HAART clinic, representing the first MRSA prevalence data from Edo State. This figure substantially exceeds the 16.1% rate reported from Port Harcourt [19] and the 21% from Northern Nigeria, [20] differences that warrant contextual interpretation. The ISTH ART clinic serves a predominantly long-term, ART-experienced cohort with cumulative healthcare exposures over months to years; the sustained healthcare contact in this population likely drives higher MRSA acquisition compared with studies enrolling all HIV-positive outpatients regardless of ART experience. Additionally, methodological differences — swabbing three anatomical sites in this study versus predominantly nasal-only swabbing in most studies, may contribute to the higher detection rate.

The significant associations between MRSA carriage and both CD4 count category (p=0.047) and WHO clinical stage (p=0.040) are clinically important findings. Participants with severe immunosuppression (CD4 <200 cells/μL) had an MRSA positivity rate of 86.5%, compared with 69.6% in those with preserved immunity (>500 cells/μL). This gradient aligns with the pathophysiological expectation that deeper CD4 depletion impairs cutaneous immunity and MRSA clearance. This supports targeting the most immunocompromised patients for priority MRSA screening and decolonisation.

Age group (p=0.042) and occupation (p=0.047) also showed significant associations with MRSA carriage. Positivity was highest in the 21-30year age group (85.7%) and declined with advancing age, reaching 50.0% in participants over 60years. This age pattern may reflect more frequent healthcare utilisation and social exposures in younger PLWH. Among occupational groups, skilled workers had the highest MRSA positivity (90.3%), possibly reflecting occupational exposures or greater healthcare contact in this subgroup. These associations merit further investigation in a larger cohort with multivariable analysis to determine independent predictors of MRSA carriage.

The groin-predominant distribution of MRSA — positive in 53.4% of groin specimens versus 40.3% nasal and 36.9% axillary — departs markedly from the classical nasal-predominant pattern in MRSA epidemiology. [21, 22] HIV-associated immune dysregulation preferentially affects intertriginous skin, and HIV-related pruritus creates microtrauma that facilitates staphylococcal penetration of the groin skin barrier. [23] The practical implication is substantial: a nasal-only screening strategy would miss a significant proportion of MRSA-colonised individuals whose only or predominant site of carriage is the groin. Three-site screening is therefore essential in PLWH.

Importantly, none of the clinical behavioural risk factors — nose-picking, long nails, invasive device use, underlying disease, prior antibiotics, Cotrimoxazole, or hospitalisation — reached statistical significance as determinants of MRSA carriage in this cohort. The non-significance of cotrimoxazole use (p=0.315) is consistent with published data from Kenyan and Ugandan PLWH cohorts and suggests that Cotrimoxazole prophylaxis does not independently determine MRSA carriage status. [24, 25]

This study has limitations. The absence of a control HIV-negative group prevents direct comparison between HIV-positive and HIV-negative MRSA rates in this setting. CD4 and WHO stage data were extracted from clinic records and may not reflect the exact immunological status at the time of swabbing. Viral load was not significantly associated with MRSA in this analysis, though the small number of participants with

viral load >500 copies/mL (n=15) limits statistical power for this subgroup.

5. Conclusion

MRSA colonisation was highly prevalent at 74.43% among PLWH at ISTH, establishing an important baseline for infection prevention policy in Edo State. The groin was the most commonly colonised site, challenging the nasal-centric screening paradigm. Significant associations between MRSA positivity and both CD4 count category and WHO clinical stage confirm an immunological gradient in MRSA carriage, supporting priority screening of the most immunosuppressed PLWH. Clinical behavioural risk factors were not independently significant in this cohort. Multi-site swabbing protocols and integrated MRSA surveillance within ART clinic programmes are recommended for PLWH in Nigeria.

Abbreviations

AIDS	Acquired Immune Deficiency Syndrome
ART	Antiretroviral Therapy
CD	Cluster of Differentiation
HIV	Human Immunodeficiency Virus
ISTH	Irrua Specialist Teaching Hospital, Irrua
MRSA	Methicillin-Resistant *Staphylococcus aureus*
PLWH	People Living with HIV/AIDS

Author Contributions

Ogbue Itohan Joan: Conceptualization, Resources, Data curation, Formal analysis, Writing – original draft

Adewuyi Gbolagade Morufu: Conceptualization, Resources, Supervision, Writing – original draft

Samuel Olowo Sunday: Supervision, Writing – review & editing

Unuane Amos Egbedion: Data curation, Writing – review & editing

Otumu Tabitha Obulimi: Methodology, Writing – review & editing

Conflicts of Interest

The authors declare no conflicts of interest.

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