

# Criminalization, Stigma, and Barriers to Justice: A Mixed-Methods Implementation Study of Rights-Based HIV Responses for Rural LGBTQ Population in Yakurr.

Aondoakaa Lubem<sup>1\*</sup>, Yojorsam Stephen Okoi<sup>2</sup>, Omini Peter Omini<sup>3</sup>, Ebenezer Esidene Eneji<sup>1</sup>

<sup>1</sup>Department of Programs, Initiative for Health and Equality, Calabar, Cross River State, Nigeria

<sup>2</sup>Department of Public Health University of Calabar, Cross River State, Nigeria

<sup>3</sup>College of Community Health, University of Calabar Teaching Hospital Calabar, Cross River, Nigeria

\*Corresponding Author

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## ABSTRACT

LGBTQ populations in rural Cross River State, Nigeria face intersecting barriers to HIV prevention, gender-based violence (GBV) response, and access to justice, driven by criminalization, stigma, and limited availability of inclusive services. This study evaluated a community-led, multi-level intervention implemented in Yakurr Local Government Area, in Cross River State, Nigeria. A convergent mixed-methods implementation study was conducted between August 2023 and December 2024 among LGBTQ individuals in selected rural communities (Ugep, Mkpani, Ekor, and Idomi). A total of 457 LGBTQ participants were engaged in community dialogues, from which a purposively selected subset of 221 individuals receiving antiretroviral therapy (ART) participated in in-depth interviews. The intervention comprised peer-led advocacy, community dialogues, GBV response services, safety and security training, and healthcare worker engagement, implemented using Human Rights-Based Approach (HRBA). Quantitative data were analyzed using descriptive and pre-post comparisons, while qualitative data were analyzed thematically. Findings were triangulated to assess effectiveness and implementation processes. At baseline, 72.4% of participants reported fear of arrest, and 68.9% reported prior exposure to GBV. Following the intervention, knowledge of HIV prevention increased from 54.2% to 81.7%, awareness of legal rights from 35.6% to 73.4%, and awareness of GBV response pathways from 41.3% to 78.9%. A total of 144 GBV survivors accessed integrated support services in addition, 178 individuals initiated ART, and 215 accessed viral load testing and counseling. Participants reported increased utilization of community-based GBV reporting mechanisms and improved linkage to LGBTQ-friendly healthcare services. Community-led, rights-based and multi-level interventions were associated with substantial improvements in knowledge, service uptake, and access to justice among LGBTQ populations in criminalized and resource-limited settings. Integrating peer-led systems with community mobilization and institutional engagement provides a scalable model for strengthening HIV and GBV responses in similar contexts.

**Keywords:** HIV prevention, Gender-Based Violence, LGBTQ Health, Community-led interventions

## INTRODUCTION

Globally, despite significant biomedical advances in HIV prevention and treatment, inequities persist among key populations, particularly lesbian, gay, bisexual, transgender, and queer (LGBTQ) individuals. Structural barriers including criminalization, stigma, and discrimination continue to undermine equitable access to HIV services and heightened health disparities [36]. In sub-Saharan Africa, where HIV burden remains disproportionately high, these barriers are intensified by punitive legal environments and entrenched socio-cultural norms that marginalize sexual and gender minorities [5,33].

Nigeria represents one of the most restrictive environments for LGBTQ populations globally. The enactment of the Same Sex Marriage (Prohibition) Act institutionalized criminal penalties for same-sex relationships and further legitimized widespread stigma, harassment, and violence against LGBTQ [18]. Empirical evidence indicates that such legal frameworks are strongly associated with reduced access to HIV prevention, testing, and treatment services, as well as increased vulnerability to human rights violations [29,32]. Criminalization not only drives LGBTQ individuals underground but fosters fear of arrest, blackmail, and social exclusion, thereby disrupting engagement across the HIV care continuum [35].

Beyond legal constraints, stigma operates at multiple, intersecting levels including individual, interpersonal, and institutional producing cumulative adverse effects on health outcomes. The minority stress theory posits that chronic exposure to stigma, prejudice, and discrimination contributes to heightened psychological distress and risk behaviors among marginalized populations [26]. In the context of HIV, stigma has been consistently linked to delayed testing, poor treatment adherence, and reduced viral suppression among LGBTQ individuals [23]. In Nigeria, healthcare settings often reflect broader societal biases, with documented cases of denial of care, breaches of confidentiality, and discriminatory attitudes among providers [1].

Importantly, these challenges are further compounded in rural and peri-urban settings, where healthcare infrastructure is limited and social visibility is heightened, increasing risks of exposure and victimization. While much of the existing literature focuses on urban LGBTQ populations, there remains a critical gap in understanding the lived realities and service access barriers faced by rural LGBTQ communities in highly criminalized contexts [33]. This gap limits the effectiveness of national HIV responses, which often fail to incorporate localized, community-driven strategies that address both structural and social determinants of health.

In response to these challenges, there is growing recognition of the need for rights-based and community-led approaches to HIV programming. The Human Rights-Based Approach (HRBA) emphasizes participation, accountability, non-discrimination, and empowerment as core principles for addressing health inequalities [16]. Evidence suggests that community-led interventions can significantly improve HIV outcomes by enhancing trust, reducing stigma, and facilitating linkage to care among marginalized populations [36,20]. Such approaches are particularly critical in hostile environments where formal systems may fail to protect or adequately serve LGBTQ individuals.

This study builds on these frameworks by examining a community-driven, HRBA-informed intervention implemented in rural communities in Cross River State, Nigeria. Project aims to address gender-based violence (GBV), improve access to justice, and strengthen linkage to HIV services among LGBTQ individuals. By integrating peer-led advocacy, community dialogues, and health system engagement, the intervention seeks to reimagine HIV responses in criminalized settings through locally grounded, rights-affirming strategies.

Conceptually, this study is informed by an integrated framework combining structural violence theory, minority stress theory, and Human Rights-Based Approach. Structural violence underscores how social, legal, and economic systems produce and reproduce health inequalities [12], while minority stress theory explains the psychosocial pathways through which stigma impacts health outcomes [26]. HRBA provides the operational lens for intervention design, emphasizing community ownership and systemic accountability. Together, these frameworks enable a comprehensive analysis of how criminalization and stigma intersect to shape HIV vulnerabilities and how community-led responses can disrupt these dynamics.

By documenting implementation outcomes and lessons learned, this study contributes to the limited but growing body of evidence on rights-based, community-driven HIV interventions in rural, criminalized settings. It offers critical insights for policymakers, donors, and practitioners seeking to design inclusive and effective HIV responses that uphold the dignity and rights of LGBTQ populations in Nigeria and similar context. The conceptual framework guiding this study is presented in Figure 1, illustrating the interaction between individual, community, and institutional components of the intervention.

## METHODOLOGY

### Study Design

This study employed a prospective pre-post convergent mixed-methods implementation research design, integrating quantitative and qualitative approaches to evaluate the effectiveness, acceptability, and real-world applicability of a multi-level intervention addressing barriers to justice, safety, and HIV services uptake among LGBTQ individuals in four rural communities; Ugep, Mkpani, Ekori, and Idomi located within Yakurr Local Government Area, in Cross River State, Nigeria. The implementation science approach enabled examination not only of intervention outcomes but also of how and why the intervention functioned within a highly criminalized and resource-constrained context, including factors influencing uptake, fidelity, and sustainability. Quantitative and qualitative data were collected concurrently and triangulated to enhance validity and provide a comprehensive understanding of both measurable changes and lived experiences [8]. The intervention was implemented between August 2023 and December 2024, following structured sequence of baseline assessment, iterative implementation, and endline evaluation. The study was guided by a Human Rights-Based Approach (HRBA), emphasizing participation, non-discrimination, accountability, and empowerment [16]. The quantitative component followed a pre-post (baseline and endline) assessment framework, while qualitative data were collected concurrently to contextualize observed changes.

As this was a real-world implementation study conducted in a highly criminalized and resource-constrained setting, inclusion of a control or comparison group was not feasible due to ethical, safety, and operational constraints. Instead, a pre-post design combined with mixed-methods triangulation was used to strengthen causal plausibility. This approach is consistent with implementation research in hard-to-reach and high-risk populations.

### Study Setting

The study was conducted in four rural and peri-urban communities; Ugep, Mkpani, Ekori, and Idomi located within Yakurr Local Government Area, in Cross River State, Nigeria. These communities are characterized by limited healthcare infrastructure, high levels of stigma, and restricted access to LGBTQ inclusive services, compounded by the broader criminalization of same-sex relationships in Nigeria. Sites were purposively selected based on:

1. Documented cases of stigma, discrimination, and gender-based violence (GBV)
2. Limited access to HIV prevention and treatment services
3. Presence of existing LGBTQ community networks and peer leaders

These contextual characteristics made the setting appropriate for evaluating community-led and rights-based intervention models in high-risk environments.

### Study Population and Sampling

The study population comprised LGBTQ individuals, including gay and bisexual men, transgender persons, and other sexual and gender minorities, as well as a subset of individuals currently receiving antiretroviral therapy (ART). A purposive and snowball sampling strategy was employed to recruit participants, appropriate for engaging hidden and criminalized populations while prioritizing safety and confidentiality [2]. The following were the inclusion criteria:

1. Self-identification as LGBTQ
2. Age  $\geq$  18 years
3. Residency within the selected communities

A total of 457 participants engaged in structured community dialogues and 221 ART recipients participated in in-depth interviews. Sample size was determined based on programmatic reach and saturation of qualitative themes, ensuring adequate representation of diverse lived experiences within the study population. While, this approach limits statistical generalizability, it enhances contextual depth, safety, and relevance, consistent with

methodological standards for research involving marginalized population. The 221 ART participants were drawn as a subset of the broader sample of 457 participants to provide a treatment-experienced perspectives within the mixed-methods design.

While the absence of a control group and inferential statistical testing limits causal attribution, the study adopts a robust implementation science approach, combining pre-post assessment with mixed-methods triangulation to enhance causal plausibility in complex, real-world settings where experimental designs are not feasible.

### Intervention Description

The intervention comprised a multi-component, community-driven package of rights-affirming strategies, designed to address structural, social, and institutional barriers to HIV service access and justice. Grounded in HRBA and informed by implementation science principles, the intervention targeted determinants across individual, community, and institutional level. All components were implemented using a standardized yet adaptable framework, ensuring consistency across sites while allowing for contextual responsiveness. Intervention fidelity was maintained through structured training of peer facilitators, use of standardized toolkits, and continuous monitoring through the project’s Monitoring and Evaluation (M&E) system.

**Table 1.** Description of Multi-level Intervention Components and Expected Outcomes

Component	Description	Expected outcome
Community dialogues	Structured participatory forums facilitated by trained peer human rights defenders using a standardized toolkit; implemented across four communities with approximately 20-30 participants per session in iterative cycles throughout the intervention period	Increased awareness, community ownership, and identification of barriers to HIV services and justice
Peer-led advocacy & education	Targeted sessions delivered by trained peer educators on HIV prevention, legal rights, GBV response, and safety planning; conducted repeatedly within communities to reinforce knowledge and engagement	Improved knowledge, safer behaviors, and increased uptake of HIV services
Stakeholder engagement	Periodic accountability forums and dialogues involving healthcare providers, law enforcement, and community leaders to address institutional stigma and discrimination	Improved responsiveness of institutions and reduced structural barriers
Safety & Security training	Group-based capacity-building sessions on risk mitigation, digital safety, and crisis response delivered to community members and peer leaders across implementation	Enhanced safety, resilience, and risk management capacity
Post-GBV Response Services	Continuous provision of safe referral pathways and case management linking survivors to psychosocial, legal, and HIV care services throughout the project period	Improved access to justice, care, and recovery support for GBV survivors

Importantly, these levels were mutually reinforcing, increased individual demand for services, driven by peer-led interventions, was supported by community-level reductions in stigma and enabled by improved institutional responsiveness. Conversely institutional engagement helped legitimize community advocacy efforts, while strengthened community networks facilitated sustained individual participation in HIV and justice services.

This integrated, multi-level implementation model aligns with evidence demonstrating that community-led HIV interventions are most effective when they simultaneously address structural, social, and individual determinants of health [20]. By linking rights-affirming strategies across levels, the intervention created a

coherent pathway for reducing vulnerability, improving service uptake and advancing access to justice among LGBTQ populations in a hostile legal environment.

### **Implementation Approach**

The intervention was delivered through a community-embedded, multi-level implementation model, with trained peer facilitators and human rights defenders serving as primary implementers. Their positionality within the communities enhanced trust, cultural relevance, and sustained engagement in a criminalized and high-stigma environment. Implementation was iterative and adaptive, guided by continuous feedback from the M&E system. Adjustments were made in response to emerging challenges, participant feedback, and contextual risks, consistent with implementation science best practices. Intervention components were delivered across three interconnected levels:

1. Individual level: peer-led advocacy, safety and security training, and GBV response services to improve knowledge, self-efficacy, and service navigation capacity.
2. Community level: structured dialogues and peer engagement sessions to facilitate collective problem identification, reduce stigma, and strengthen social support networks
3. Institutional level: stakeholder engagement and accountability forums with healthcare providers, law enforcement, and community leaders to address systemic barriers and improve service responsiveness

These levels were implemented concurrently and may have interacted to influence observed outcomes, creating synergistic effects, where increased demand for services was supported by improved community acceptance and institutional readiness.

### **Data Collection Methods**

Quantitative and qualitative data were collected concurrently throughout the study period. Quantitative data were obtained through a structured pre- and post- intervention assessments administered during community dialogue sessions. Pre- and post-intervention assessments were conducted among participants attending community dialogue sessions; however, responses were analyzed at the aggregate level, and individual-level matching was not performed. These tools measured changes in HIV knowledge, legal awareness, GBV response knowledge, and service uptake indicators. Qualitative data were collected through in-depth interviews with ART recipients using semi-structured interview guides exploring experiences of stigma, access to services, safety, and perceptions of the intervention. Data collection was conducted by trained peer researchers to enhance trust and reduce reporting bias. Primary outcomes included changes in HIV prevention knowledge, legal rights awareness, and awareness of GBV response pathways. Secondary outcomes included uptake of HIV services (ART initiation and viral load testing), utilization of GBV response services, and perceived safety and resilience. Implementation outcomes such as acceptability, reach, and feasibility were also assessed. Data collection tools were developed based on programmatic indicators and informed by existing literature on HIV prevention, GBV, and human rights in similar contexts. The tools were reviewed by project staff and pilot-tested within the community to ensure clarity, cultural relevance, and appropriateness before full implementation.

### **Data Analysis**

Quantitative data were analyzed using descriptive statistical approaches to summarize participant characteristics and key indicators. Frequencies and proportions were calculated to describe baseline conditions and post-intervention outcomes. Changes were assessed using percentage point differences to estimate the magnitude and direction of change across key variables, including HIV knowledge, legal awareness, and awareness GBV response pathways. Given the non-randomized and programmatic nature of the study, no formal inferential statistical tests were conducted, and findings are interpreted as indicative of trends and association rather than notable change effects or causal relationships.

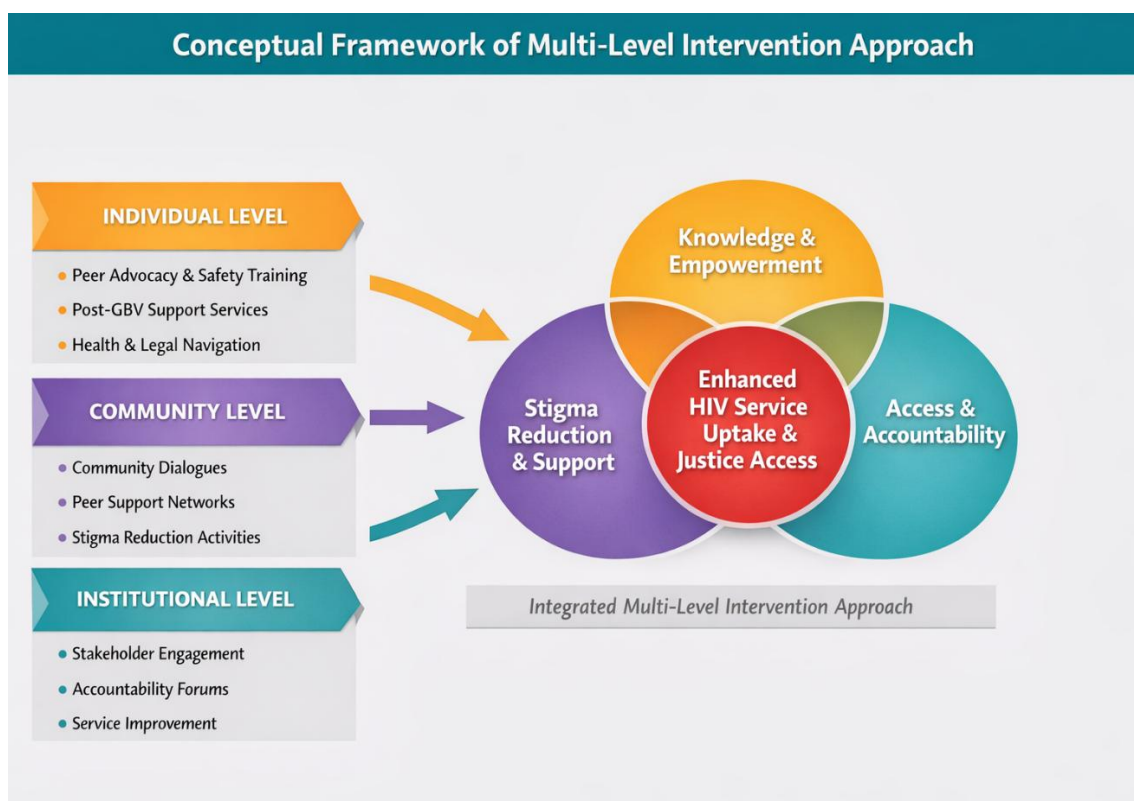
Qualitative data were analyzed using thematic analysis, following an iterative process of familiarization, coding, and theme development. Coding was conducted by trained members of the research team, with regular discussions to ensure consistency and resolve discrepancies. Quantitative and qualitative findings were integrated at the interpretation stage using triangulation, allowing convergence of numerical trends with participant experiences to strengthen the credibility and contextual understanding of the findings.

Although inferential statistical tests were not conducted, the use of consistent pre-post measurement across key indicators and convergence with qualitative findings strengthens confidence in the observed trends.

### Ethical Considerations

This study was conducted as a community-based implementation research and programmatic evaluation in a highly sensitive and criminalized context. Due to the criminalized and high-risk context in which the study was conducted, seeking formal institutional ethical approval was assessed as potentially increasing risks to participants and researchers. A community-led ethical review approach was therefore adopted, incorporating risk assessment, confidentiality safeguards, and voluntary informed consent procedures. This approach aligns with ethical guidance for research involving criminalized and hard-to-reach populations.

All procedures adhere to internationally recognized ethical principles for human subject research, including voluntary participation, informed consent, confidentiality, and risk mitigation. No personal identification was collected, and all data were anonymized at the point of collection. This approach aligns with ethical best practices for conducting research in settings where formal institutional review may pose additional risks to vulnerable populations.



**Figure 1** Conceptual Framework of the Multi-level, Rights-Based Intervention Model

## RESULTS

### Participant Characteristics

Participants characteristics are summarized in Table 2. The sample comprised predominantly gay and bisexual men, followed by transgender persons and LBQ women. Most participants were aged 25-34 years and over half were unemployed, reflecting notable socio-economic vulnerability within the study population. These participants were drawn from rural communities within Yakurr Local Government Area, in Cross River State, Nigeria. A total of 457 LGBTQ individuals participated in structured community dialogues, while 221 individuals receiving antiretroviral therapy (ART) were engaged through in-depth interviews. This combined sample reflects both community-level engagement and treatment-experienced perspectives, consistent with the study’s convergent mixed-methods implementation design. A total of 457 participants were included in the study sample, of whom 221 participated in in-depth interviews. In addition, 757 individuals were reached through broader programmatic activities; however, these individuals were not part of the analytical sample.

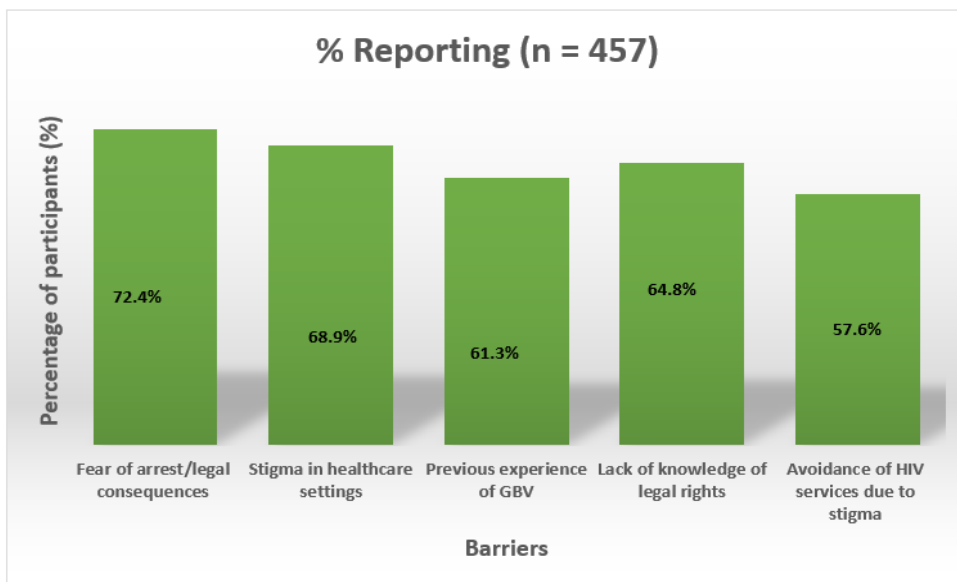
**Table 2.** Socio-demographic Characteristics of Study Participants (N = 457).

Characteristics	Frequency (n)	Percentage (%)
<b>Sexual/Gender Identity</b>		
Gay/Bisexual men	268	58.6
Transgender	121	26.5
LBQ women	68	14.9
<b>Age Group (years)</b>		
18-24	139	30.4
25-34	211	46.2
≥35	107	23.4
<b>Employment Status</b>		
Unemployed	243	53.2
Informal employment	164	35.9
Formal employment	50	10.9

## Barriers to Justice, Healthcare, and Safety

### Baseline Structural and Social Barriers:

As illustrated in Figure 2, participants reported high levels of structural and social barriers at baseline, including fear of arrest, stigma, in healthcare, and prior exposure to gender-based violence. At baseline, across both quantitative and qualitative data, participants reported pervasive stigma, criminalization-related fears, and systemic exclusion. These findings represent pre-intervention conditions within the study communities of Yakurr Local Government Area and serves as a reference point for describing changes observed following implementation of the multi-level intervention.



**Figure 2.** Prevalence of Reported Barriers to Healthcare and Justice Services at Baseline

### Qualitative Findings

Participants describe a cyclical relationship between criminalization, stigma, and service avoidance.

- “...if you go the police, you become the suspect...”
- “...hospitals treat me like I don’t deserve care...”
- “...A healthcare provider in her words to me, you no know say gay go land you 14 years in prison... translated for clarity to mean that “...a healthcare provider told me that being gay could lead to imprisonment...”

**Interpretation:**

Criminalization under the Same Sex Marriage (Prohibition) Act was reported by participants as limiting engagement with HIV prevention and treatment services

**Intervention Coverage and Implementation Outputs**

Intervention coverage and implementation outputs are summarized in Table 3, demonstrating substantial reach across all components of the multi-level interventions. Key implementation outcomes included high participant engagement, broad coverage of peer-led activities, and sustained interaction with institutional stakeholders. These outputs suggest the feasibility and acceptability of the intervention within the study context and indicate potential for scalability.

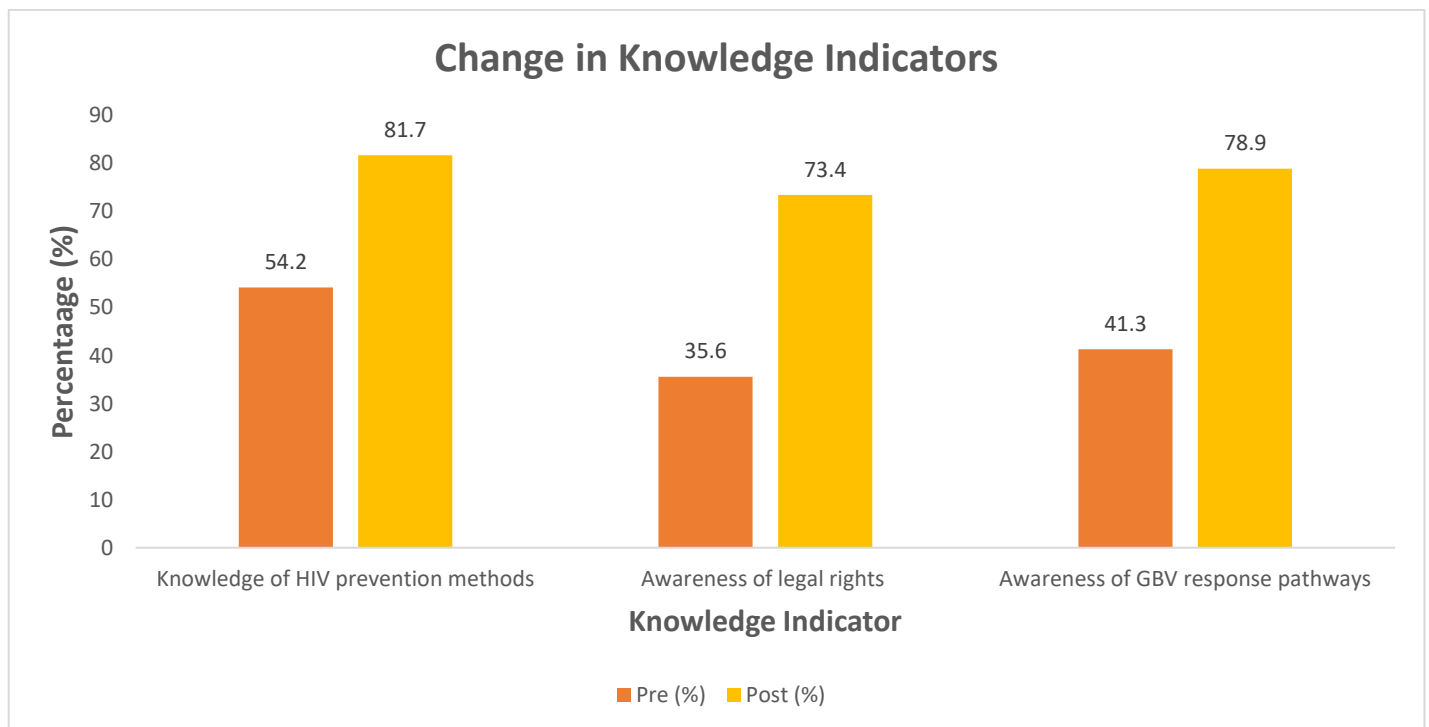
**Table 3.** Intervention Coverage and Outputs

Component	Definition	Output Achieved
Community dialogues	Structured peer-facilitated sessions	457 participants
Peer-led advocacy initiatives	Repeated community-based education sessions	21 initiatives; 1008 individuals reached
GBV response initiatives	Organized interventions providing survivor support pathways	3 major initiatives
Survivors supported	Individuals receiving GBV services	144 survivors
Healthcare worker engagements	Sensitization and accountability sessions	61 initiatives

**Changes in Knowledge, Safety, and Community Engagement (Individual & Community Level)**

**Improved Knowledge and Awareness**

As shown in Figure 3, notable increases were observed across all knowledge domains, including HIV prevention, legal rights, and GBV response pathways. These findings were further supported by qualitative data, indicating enhanced understanding and practical application of knowledge among participants. The convergence of quantitative and qualitative findings supports the consistency of observed changes.



**Figure 3.** Changes in Knowledge of HIV Prevention, Legal Rights, and GBV Response Pathways (Pre- and Post-intervention assessment, N = 457)

## Enhanced Safety and Resilience

Participants reported improvements in perceived safety, risk mitigation capacity, and crisis response, reflecting reported improvements in perceived safety and coping capacity among participants. These changes indicate high acceptability and effectiveness of safety and security components within the broader implementation framework.

### Qualitative Insights

#### Theme: Improved Crisis Response Awareness

- a. " ...now we know who to call in case of crisis..."
- b. "...now we know where to go when something happens..."

#### Access to Justice and GBV Response Outcome

A total of 144 GBV survivors accessed integrated support services, including legal psychosocial, and healthcare referrals, through community-led response pathways established during the intervention. Increased reporting through these channels reflects improved awareness, trust, and accessibility of GBV services within the intervention communities.

### Key Outcome

Survivors prioritized confidential, community-based justice pathways, suggesting perceived limitations of formal systems among participants.

#### HIV Service Uptake Outcomes (Institutional Linkages)

HIV service uptake outcomes are presented in Table 4, showing increases in ART initiation and viral load testing following the intervention. Increases in HIV service uptake was observed following the intervention period, these patterns are consistent with potential contributions from individual-level, community-level and institutional-level changes observed during the intervention. These outcomes suggests that the multi-level intervention model may have contributed to improved service uptake within the study context.

**Table 4.** HIV Services Uptake Outcome Following Intervention

Indicator	Value
ART initiation	178
Viral load testing and counseling	215
Referrals to LGBTQ friendly facilities	Referrals to LGBTQ-friendly facilities increased across all 10 participating service points

### Qualitative Evidence:

- a. "...before, we were rather afraid to attend to them. Now we understand confidentiality and rights..."
- b. "...before, we let our cultural belief got the better part of our judgement. Now we understand every human has rights to dignity and health..."

## DISCUSSION

This study provides implementation-level evidence that a community-led, rights-based, multi-level intervention can address structural barriers and improve access to HIV services and justice among LGBTQ populations in rural, criminalized settings. By integrating peer-led engagement, community mobilization, and institutional dialogue, the intervention demonstrated consistent improvements across knowledge, safety, and service uptake indicators. The consistency of findings across qualitative and quantitative data sources strengthens internal validity and supports causal plausibility, despite the non-experimental design.

Importantly, the findings extend beyond outcome evaluation to provide implementation-relevant insights, highlighting how peer-led systems, community mobilization, and institutional engagement can be integrated to function effectively within a hostile legal and social environment. The convergence of quantitative and qualitative data strengthens the validity of these findings and supports the use of mixed-methods implementation research in evaluating complex interventions among marginalized populations [8,12].

### **Participant Characteristics**

As shown in Table 2, the demographic profile reflects a population situated at the intersection of legal marginalization, economic vulnerability, and health inequalities. The predominance of young adults (18-34) years and individuals in informal or unstable employment underscores the structural determinants shaping HIV risk and access to services in this setting, consistent with broader evidence linking socio-economic vulnerability to HIV risk among key population [3,5]. From an implementation perspective, the high engagement of younger participants suggests that peer-led and community-embedded models are particularly effective in reaching youth populations, especially where formal systems are perceived as exclusionary or unsafe [12].

The overrepresentation of gay and bisexual men (58%) reflects both epidemiological realities and sampling dynamics. Men who have sex with men (MSM) continue to bear a disproportionate burden of HIV in Nigeria, with prevalence estimates significantly higher than in the general population [14]. At the same time, the reliance on purposive and snowball sampling appropriate for hidden populations may have facilitated stronger recruitment within more visible or networked subgroups, particularly cisgender MSM, compared to more marginalized groups such as transgender persons. Nonetheless, the inclusion of transgender women (26.5%) represents a critical strength of the study, given their documented exclusion from both research and service delivery in many African settings [29]. Their representation enhances the inclusivity and relevance of the findings, particularly in relation to intersectional stigma and barriers to care.

The high proportion of participants experiencing unemployment or informal employment (over 89%) highlights the structural vulnerabilities that shape both HIV risk and access to justice. Economic marginalization has been consistently linked to increased exposure to violence, engagement in survival sex, and reduced ability to access healthcare services [4,28]. In criminalized environments like Nigeria, where the Same Sex Marriage Prohibition Act restricts not only relationships but also association and advocacy, economic exclusion is further compounded by legal precarity, limiting livelihood opportunities and reinforcing cycles of vulnerability. The findings therefore show the necessity of integrating economic empowerment and structural interventions within HIV and human rights programming.

Importantly, the dual sample structure combining community-level participants with ART-experience individuals strengthens the analytical depth of the study. While the broader sample captures population-level barriers and social dynamics, the ART cohort provides insight into health system navigation and treatment continuity, enabling a more nuanced understanding of the HIV care continuum in hostile settings. This approach is consistent with recommendations for mixed-methods HIV research, which emphasize the value of integrating experiential and service-level perspectives to inform intervention design [8]. From the methodological standpoint, the use of purposive and snowball sampling was both appropriate and necessary given the hidden and criminalized nature of the population. However, as noted in similar studies, such approaches may introduce selection bias, potentially overrepresenting individuals already connected to community networks or services [2]. This limitation should be interpreted in light of the study's objectives, which prioritize depth of engagement and safety over statistical generalizability, a trade-off widely used in research involving marginalized populations [33].

Overall, the participant profile reflects a population situated at the intersection of legal marginalization, economic vulnerability, and health inequities, reinforcing the relevance of the study's Human Rights-Based Approach (HRBA). The demographic distribution not only contextualizes subsequent findings on barriers and service uptake but also substantiates the need for multi-level, community-driven interventions that address the structural determinants of HIV risk and access to justice. While findings may not be statistically generalizable, they are analytically transferable to similar criminalized and rural contexts, particularly in sub-Saharan Africa where structural barriers to LGBTQ health are comparable.

## Barriers to Justice, Healthcare, and Safety

### Baseline Structural and Social Barriers

The baseline findings illustrated in Figure 2 reveal a structurally constrained environment in which criminalization, stigma, and institutional exclusion interact to limit access to both healthcare and justice. The high prevalence of fear of arrest and healthcare-related stigma illustrates how legal frameworks and social norms function as upstream determinants of health, shaping downstream behaviors such as service avoidance and underreporting of violence [4,5]. These findings are consistent with existing literature demonstrating that criminalization significantly undermines HIV prevention and care outcomes among key populations [9,14].

The prominence of criminalization-related fear as the leading barrier suggests the profound impact of punitive legal frameworks on health-seeking behavior. In Nigeria, the Same Sex Marriage Prohibition Act not only criminalizes same-sex relationships but also restricts association and advocacy, thereby institutionalizing stigma and legitimizing discrimination. Empirical studies across sub-Saharan Africa have shown that such legal environments are strongly associated with reduced HIV testing, delayed treatment initiation, and increased concealment of sexual identity [24,33]. The present findings extend this evidence by demonstrating how criminalization produces a spillover effect across systems, shaping both healthcare avoidance and reluctance to engage with formal justice mechanisms.

Importantly, the data highlight a bidirectional relationship between criminalization and institutional distrust. Participants' narratives particularly the perception that seeking justice could result in self-incrimination reflect what has been conceptualized as "anticipatory stigma" wherein individuals preemptively avoid institutions due to expected discrimination or harm [11]. This phenomenon is well-documented in HIV research and is associated with poorer health outcomes, including lower rates of services utilization and adherence to treatment [34]. In this study, anticipatory stigma appears to operate not only within healthcare settings but also within legal systems, effectively closing off formal pathways to justice.

The high prevalence of healthcare stigma (68.9%) further reinforces the role of institutional environments as barriers rather than enablers of care. Discriminatory attitudes among healthcare providers have been shown to significantly deter LGBTQ individuals from accessing HIV services, particularly in contexts where providers lack training in non-discriminatory care or operate within stigmatizing policy environments [13,22]. In line with these findings, participants in this study reported experiences of mistreatment and exclusion in healthcare settings, contributing to service avoidance (57.6%). This aligns with evidence from multi-country analyses indicating that stigma within healthcare systems is a critical driver of unmet HIV prevention and treatment needs among key populations [36].

The intersection of gender-based violence (GBV) and structural barriers is also notable, with over 61% of participants reporting experiences of violence. Violence against LGBTQ individuals is both a consequence and a mechanism of structural stigma, reinforcing social exclusion and increasing vulnerability to HIV [30,10]. In criminalized settings, survivors of GBV often face compounded barriers to justice, including police harassment, victim-blaming, and lack of legal recognition, which further discourages reporting and access to support services [23]. The findings suggest that GBV is not an isolated phenomenon but rather embedded within a broader system of marginalization that limits both safety and health outcomes.

The reported lack of legal knowledge (64.8%) adds another critical dimension, highlighting gaps in empowerment and access to rights-based information. Legal literacy is a key component of effective HIV responses, particularly within Human Rights-Based Approaches (HRBA), as it enables individuals to recognize violations, seek redress, and navigate complex institutional systems [16]. The observed deficit in legal awareness suggests that structural barriers are compounded by informational inequities, further entrenching vulnerability.

Taken together, these findings strongly support the modified social ecological model, which conceptualizes HIV risk as a product of interacting individuals, community, and structural factors [4]. In this study, structural factors particularly criminalization and institutional stigma emerge as dominant drivers that shape downstream

behaviors, including service avoidance and underreporting of violence. This reinforces the argument that biomedical interventions alone are insufficient in such contexts; rather, effective HIV responses must address the legal and social environments that constrain access to care.

From a policy and programmatic perspective, the results suggest the necessity of rights-based, multi-level interventions that simultaneously target:

1. Legal barriers (through advocacy and reform efforts)
2. Institutional practices (through provider training and accountability mechanisms)
3. Community-level stigma (through dialogue and social norm change)
4. Individual empowerment (through legal literacy and peer support)

The convergence of quantitative and qualitative data in this study strengthens the validity of these findings, illustrating not only the prevalence of barriers but also the lived realities underpinning them. This triangulation is particularly valuable in research involving marginalized populations, where quantitative indicators alone may fail to capture the complexity of structural violence and its impact on health [8].

The baseline findings reveal a systematically hostile environment in which criminalization, stigma, and violence interact to limit access to both healthcare and justice. Addressing these barriers requires a fundamental shift from individual-level interventions to structural and rights-based approaches, aligning with the global calls to decriminalize same-sex relationships and integrate human rights into HIV programming [5,36].

### **Intervention Coverage and Implementation Outputs**

The scale of implementation, as detailed in Table 3, highlights the feasibility and acceptability of community-led approaches in high-risk and resource-constrained settings. High levels of participation in community dialogues and peer-led activities indicate acceptability and feasibility, while sustained engagement with institutional actors reflects the intervention's ability to operate across multiple levels of influence. These findings support existing evidence that community-led delivery models can effectively engage marginalized populations when interventions are grounded in trust, cultural relevance, and local ownership [10,12].

Community dialogues have been widely recognized as critical platforms for fostering collective awareness, challenging social norms, and enabling shared identification of barriers to care [8]. In this study, the scale of participation suggests that such forums were not only accessible but also perceived as safe and relevant by participants, despite prevailing risks associated with visibility. This aligns with evidence that community mobilization strategies led by trusted insiders, can effectively overcome barriers related to stigma and fear, particularly among key populations [20].

The reach of peer-led advocacy initiatives (1,008 individuals) further highlights the central role of peer networks as conduits for information, trust-building, and service linkage. Peer-driven interventions have consistently been shown to improve HIV-related outcomes by leveraging shared lived experiences and social proximity [25]. In contexts where formal institutions are perceived as hostile or exclusionary, peer educators function as critical intermediaries, facilitating both knowledge dissemination and navigation of services. The scale achieved in this study suggests a high level of network penetration, which is essential for generating community-wide shifts in knowledge and behavior.

Importantly, the implementation extended beyond community-level engagement to include institutional actors, with 61 stakeholder engagement initiatives targeting healthcare providers and other duty bearers. This multi-level approach is consistent with the Human Rights-Based Approach (HRBA) underpinning the intervention, which emphasizes accountability and systemic change alongside individual empowerment [16]. Engagement with institutions is particularly critical in settings where structural stigma is embedded within service delivery systems. Evidence from global HIV responses indicates that provider sensitization and institutional dialogue are key to reducing discriminatory practices and improving service accessibility for key populations [27].

The provision of GBV response services to 144 survivors represents a significant output particularly given the documented barriers to reporting and accessing support in criminalized contexts. The ability to reach and

support survivors suggests the establishment of functional, trusted referral pathways, which are often absent in hostile legal environments. This finding is consistent with research demonstrating that community-led case management and safe referral systems can enhance access to care and improve outcomes for survivors of violence, especially when formal systems are inaccessible or unsafe [38]. Moreover, integrating GBV response within HIV programming reflects best practice in addressing the syndemic relationship between violence and HIV vulnerability.

A key strength of the intervention lies in its simultaneous operation across multiple levels, enabling synergistic effects. While peer-led activities increased individual knowledge and demand for services, community dialogues contributed to normative shifts and collectively engagement, and stakeholder interactions targeted institutional barriers. This integrated approach aligns with the modified social ecological model, which emphasizes that sustainable health outcomes require coordinate action across individual, interpersonal, community, and structural levels [4]. The breadth of outputs observed in this study provides empirical support for this model, demonstrating that interventions addressing multiple determinants concurrently can achieve wider and more meaningful reach.

From implementation science perspective, the results also reflect adaptive and context-sensitive delivery, facilitated by the use of trained peer facilitators embedded within the communities. Such approaches have been shown to enhance intervention fidelity while allowing for necessary contextual modifications, particularly in dynamic and high-risk environments [9]. The iterative nature of implementation, supported by the ongoing monitoring and evaluation, likely contributed to sustained engagement and responsiveness to participants needs. However, while the scale of outputs is notable, it is important to consider the quality and intensity of engagement, which are critical determinants of impact. High participation numbers do not automatically translate into behavioral or structural change; rather the effectiveness of these activities depends on their depth, consistency, and ability to influence underlying determinants of vulnerability. In this regard, the integration of quantitative insights within the broader study provides important contextual validation, indicating that participations not only engaged with the intervention but also perceived it as meaningful and transformative.

Additionally, the reliance on community-based networks for recruitment and implementation may have facilitated high reach but could also introduce selection bias, potentially excluding individuals who are more isolated or disconnected from existing networks. This limitation is common in interventions targeting hidden populations and should be interpreted within the broader context of ensuring participation safety and feasibility [2].

Overall, the intervention outputs demonstrate that community-driven, rights-based strategies can achieve substantial reach even in highly constrained environments. The combination of peer-led engagement, community mobilization, and institutional dialogue represents a comprehensive and scalable model for addressing the multiple dimensional barriers faced by LGBTQ populations. These findings reinforce global evidence that effective HIV response must extend beyond service delivery to include social and structural transformation, particularly in settings where legal and institutional contexts perpetuate vulnerability [20,36].

## **Changes in Knowledge, Safety, and Community Engagement (Individual and Community Levels)**

### **Improved Knowledge and Awareness**

The magnitude of change observed across knowledge indicators in Figure 3 suggests that peer-led and rights-based approaches are effective in addressing informational inequalities in marginalized populations. Importantly, these gains reflect not only increased awareness but also enhanced cognitive and behavioral readiness to engage with services, suggesting that knowledge functioned as a key mechanism linking intervention exposure to improved outcomes. This aligns with existing studies showing that improved knowledge is a critical driver of health-seeking behavior and service utilization among marginalized populations [7,11]. This alignment between quantitative improvements and qualitative reports of increased confidence further supports the robustness of these findings.

The observed improvements in HIV prevention knowledge are consistent with evidence indicating that community-based and peer-driven education models are among the most effective strategies for reaching key populations particularly where stigma limits engagements with formal health systems [25,20]. Peer educators, by virtue of shared identify and lived experience, are uniquely positioned to deliver contextually relevant information, address misconceptions, and foster trust; factors that are critical for knowledge uptake in marginalized communities. The magnitude of change observed in this study suggests not only successful information dissemination but also high levels of participants engagement and receptivity, which are essential precursors to behavior change.

Equally significant is the near doubling of legal rights awareness, from 35.6% to 73.4%. This finding highlights the central role of legal literacy as a component of HIV programming, particularly within a Human Rights-Based Approach (HRBA). In contexts where legal frameworks criminalize same-sex relationships and restrict civic space, lack of awareness of rights and protection heightened vulnerabilities to abuse and limits access to justice [16]. The increase in legal awareness observed here suggests that participants were better equipped to recognize rights violations, navigate institutional systems, and make informed decisions regarding help-seeking. This aligns with global evidence that integrating rights education into health interventions can strengthen agency and improve access to services among marginalized populations [27].

The substantial gains in awareness of GBV response pathways (41.3% to 78.9%) are particularly noteworthy given the high baseline prevalence of violence reported in the study population. Improved knowledge of where and how to seek support is a critical determinant of timely reporting, access to care, and recovery outcomes for survivors of violence [10]. In criminalized settings, where formal reporting mechanisms may be unsafe or inaccessible, awareness of alternative, community-based pathways are especially important. The findings suggest that the intervention successfully bridged critical information gaps, enabling participants to identify violence, understand available support options, and engage with safer referral systems.

Beyond individual knowledge gains, these results reflect broader shifts in community-level engagement and collective efficacy. Increased awareness of HIV prevention, legal rights, and GBV response pathways contributes to the formation of informed peer networks, which can facilitate information sharing, mutual support, and collective action. This is consistent with social network and community mobilization theories, which posit that knowledge diffusion within interconnected groups can amplify intervention effects and contribute to sustained behavior change [7]. In this study, the combination of structured dialogues and peer-led sessions likely enhanced not only individual understanding but also community cohesion and shared responsibility for health and safety.

Importantly, the integration of safety and security training within the intervention framework appears to have reinforced these knowledge gains by translating information into practical skills. Participants' reported improvements in their ability to identify GBV and seek support suggest that the intervention moved beyond awareness to capacity building enabling individuals to apply knowledge in real life contexts. This distinction is critical, as knowledge alone is often insufficient to drive change in high-risk environments; rather, individuals must also possess the confidence and skills to act on that knowledge [34].

From an implementation perspective, the use of pre- and post-assessments measures strengthens the validity of these findings, providing quantitative evidence of change attributable to the intervention. However, it is important to acknowledge potential limitations, including social desirability bias and the absence of a control group, which may affect the interpretation of observed changes. Despite these limitations the consistency of improvements across multiple indicators, combined with qualitative reports to enhanced capacity and confidence, supports the robustness of the findings.

These results also have important implications for the broader HIV response. Knowledge of HIV prevention, legal rights, and GBV response pathways are interdependent domains, each reinforcing the others. For example, increased legal awareness may reduce fear of accessing services, while improved understanding of GBV response pathways can enhance safety and stability, thereby interconnectedness reflects the multi-level nature of vulnerability and resilience, and highlights the value of integrated intervention that address health, rights, and safety simultaneously.

The substantial improvements in knowledge and awareness observed in this study demonstrate that community-driven, peer-led and rights-based interventions can effectively build individual and collective capacity in highly constrained environments. By enhancing understanding of HIV prevention, legal rights, and GBV response, the intervention not only addressed immediate informational gaps but contributed to longer-term empowerment and resilience, laying the foundation for improved health and justice outcomes.

### Enhanced Safety and Resilience

Improvements in safety, risk mitigation capacity, and crisis response reflect a shift from individual vulnerability to collective resilience, facilitated by the development of informal peer support networks. These findings align with the theories of social capital and community empowerment, which emphasize the role of trust networks and shared resources in mitigating the effects of structural violence and improving health outcomes [13,15]. From an implementation perspective, the integration of safety and security training within peer-led interventions appears to have translated knowledge into actionable skills, a critical step in high-risk environments.

The reported increase in confidence in risk mitigation and safety planning suggests that participants were not only exposed to information but were also able to internalize and operationalize safety strategies within their daily lives. This distinction is particularly important in criminalized and high-stigma settings, where individuals must continuously navigate complex and potentially dangerous environments. Existing literature emphasizes that self-efficacy in safety planning is a key determinant of health-protective behaviors, including the ability to avoid violence, access services discreetly, and maintain continuity in HIV care [3,21]. In this study, the integration of safety and security training within peer-led interventions likely contributed to strengthening this self-efficacy, enabling participants to anticipate risks and respond proactively.

The emergence of informal peer support networks further reflects a shift toward collective resilience, wherein community members mobilize shared resources and knowledge to respond to crises. Such networks are particularly vital in contexts where formal systems such as law enforcement and healthcare are perceived as unsafe or inaccessible. Research across diverse settings has demonstrated that community-based support structures can significantly mitigate the effects of structural violence, providing emotional support, facilitating access to services, and enhancing overall well-being [7,20]. In the present study, these networks appear to have functioned as alternative safety infrastructures, enabling rapid response to incidents of violence or health emergencies.

The qualitative insights provide important contextual depth to these findings, illustrating how participants translated intervention inputs into practical outcomes:

*“...now we know who to call in case of crisis...”*

*“...now we know where to go when something happens...”*

These narratives highlight two critical dimensions of resilience; social connectivity (“who to call”) and spatial awareness of safe resources (“where to go”). Together, these elements form the foundation of effective crisis response systems, particularly in marginalized communities. The ability to identify trusted contacts and safe spaces is essential for reducing response time during emergencies and minimizing exposure to harm. From a theoretical perspective, this aligns with concepts of social capital, where networks of trust and reciprocity enhance individuals’ capacity to cope with adversity [31,19]

The development of these informal systems also reflects a process of community empowerment, a core principle of the Human Rights-Based Approach underpinning the intervention. Empowerment in this context involves not only increased knowledge but also the capacity to act collectively and influence one’s environment, even in the absence of supportive formal structures [37]. The findings suggest that participants moved beyond passive recipients of information to become active agents in their own safety and well-being, as well as contributors to the safety of others within their network.

The observed improvements in safety and resilience are also closely linked to the broader syndemic context of HIV and violence. Exposure to violence has been consistently associated with increased HIV risk, reduced

service uptake, and poorer treatment outcomes among LGBTQ populations [30,10]. By enhancing participants ability to prevent and respond to violence, the intervention may indirectly contribute to improved HIV-related outcomes, including sustained engagement in care. This highlights the importance of integrating violence prevention and response strategies within HIV programming, particularly in settings characterized by high levels of structural and interpersonal violence.

From an implementation standpoint, the success of these outcomes can be attributed to the community-embedded and iterative nature of the intervention. Peer facilitators, as trusted insiders, were well positioned to foster open dialogue, model safety behaviors, and facilitate the formation of support networks. Moreover, the repeated and reinforcing nature of intervention activities likely contributed to sustained engagement and gradual norm change, both of which are essential for building resilience in marginalized communities [9].

However, it is important to recognize that informal support systems, while effective may have limitations, particularly in terms of scalability, sustainability, and capacity address severe or complex cases. Without parallel strengthening of formal systems, including healthcare and legal institutions, these networks may be overburdened or unable to provide comprehensive support. This highlights the need for continued investment in multi-level interventions that bridge community-based resilience with institutional accountability.

### **Access to Justice and GBV Response Outcomes**

The increased utilization of community-led GBV reporting and response pathways highlights a functional reconfiguration of access to justice in a criminalized setting. Rather than relying on formal law enforcement systems, which are often perceived as unsafe, participants engaged with alternative, community-based mechanisms that prioritize confidentiality, trust, and accessibility. This finding is consistent with research demonstrating that survivors of violence often avoid formal reporting systems due to fear of stigma, discrimination, or legal repercussions [6,14].

The provision of integrated support services combining legal, psychosocial, and healthcare referrals is a critical outcome, aligning with global best practices that emphasize holistic survivor-centered responses to GBV. Evidence indicates that fragmented service delivery models often fail to meet the complex and intersecting need of survivors, particularly among marginalized populations [10]. In contrast, integrated approaches improve continuity of care, reduce attrition across service pathways, and enhance recovery outcomes. The ability of the intervention to deliver such coordinated support suggests the successful establishment of multi-sectoral referral systems, linking community-based actors with service providers despite structural constraints.

A central and particularly significant finding is the increased reporting of GBV through community-led channels, rather than formal law enforcement. This pattern reflects a strategic adaptation to structurally unsafe environments, where engagement with state institutions may expose survivors to further harm, including arrest, harassment, or secondary victimization. In such contexts, formal justice systems are often perceived not as protective, but as extensions of structural stigma, a phenomenon widely documented in settings where same-sex relations are criminalized [24,23]. The preference for community-based pathways therefore represents a rational and protective response to systemic exclusion.

Importantly, this shift should not be interpreted as a rejection of justice per se, but rather as a redefinition of justice in context. Survivor's prioritization of confidentiality, safety, and immediacy of response indicates the limitations of formal systems in meeting these needs. Community-led mechanisms, by contrast, appear to offer greater accessibility, cultural competence, and trust, enabling survivors to seek support without fear of criminalization or exposure. This aligns with emerging evidence that alternative justice models, including community-based and restorative approaches can be more effective in addressing violence within marginalized populations when formal systems are inaccessible or harmful [20].

The findings also reveal an important link between earlier intervention components and GBV response outcomes. Improvements in legal awareness and knowledge of GBV response pathways likely contributed to increased reporting and service uptake, suggesting a causal pathway from knowledge acquisition to help-seeking behavior. At the same time, the development of peer support networks and safety planning capacities

provided the social infrastructure necessary to facilitate reporting and referral. Together, these elements created an enabling environment in which survivors could recognize violence, identify safe options, and act on the individual, community, and structural interventions.

The reliance on community-led systems also highlights the role of social capital and collective efficacy in mediating access to justice. In the absence of trusted formal institutions, peer networks functioned as gateways to care, offering not only referrals but also emotional support and accompaniment. This is consistent with literature demonstrating that community cohesion and trust networks are critical determinants of service utilization and resilience among marginalized groups [7]. In this study, these networks appear to have reduced barriers related to fear, stigma, and isolation, thereby increasing the likelihood of timely intervention survivors.

However, the findings simultaneously expose persistent structural gaps, particularly the limited role of formal law enforcement in GBV response for LGBTQ individuals. While community-based systems provided effective interim solutions, their reliance underscores the failure of state institutions towards equitable protection and justice. This has important implications for sustainability and scalability, as community mechanisms may lack the authority, resources, or legal mandate to address more severe cases or ensure accountability for perpetrators. As such, these results reinforce global calls for structural reforms, including decriminalization, legal protections for sexual and gender minorities, and the integration of non-discriminatory practices within justice systems [5].

From a programmatic perspective, the findings support the effectiveness of hybrid models of justice and care, which combine community-led approaches with strategic engagement of formal systems. While community pathways can provide immediate and contextually appropriate support, long-term impact requires institutional transformation to ensure that survivors can safely access formal justice mechanisms when needed. This shows the importance of maintaining a multi-level design of the intervention, where community empowerment is complemented by ongoing advocacy and stakeholder engagements.

### **HIV Service Uptake Outcomes and Institutional Linkages**

The improvements in service uptake presented in Table 4 reflect the successful alignment of increased demand with enhanced institutional responsiveness. These gains reflect a synergistic effect, where individual-level knowledge, community-level support, and institutional-level responsiveness interact to facilitate service uptake. This finding reinforces the importance of addressing both demand- and supply-side barriers simultaneously, particularly in settings where stigma and discrimination have historically limited access to care [10,11].

Importantly, the increase in uptake cannot be attributed to a single intervention component but rather reflects a convergence of effects across individual, community, and institutional domains. This pattern aligns with the social ecological model of HIV risk and service access, which posits that sustained improvements in health outcomes require coordinated changes across multiple levels of influence [4]. In this study, earlier gains in knowledge and legal awareness appear to have generated increased individual demand for services, while improvements in community-level safety and support systems reduced psychosocial barriers to care-seeking. These shifts were, in turn, reinforced by enhanced institutional responsiveness, enabling demand to translate into actual service uptake.

The role of peer-led interventions in generating demand is well-established in the literature, particularly among key populations facing stigma and exclusion. By improving knowledge of HIV prevention and treatment, as well as awareness of available services, peer education increases both perceived need and self-efficacy for accessing care [25]. However, demand alone is insufficient in contexts where services are inaccessible or discriminatory. The findings of this study demonstrate that demand-side interventions must be matched by supply-side readiness, a condition that was achieved through targeted engagement with healthcare providers and institutions.

The reported institutional-level changes including reduced discrimination, increased provider willingness to deliver care, and strengthened referral pathways represents a critical enabling factor for service uptake. Stigma within healthcare settings has been consistently identified as a major barrier to HIV testing, treatment initiation, and retention in care among LGBTQ populations [27]. The qualitative evidence from providers in this study

illustrates a shift in attitudes and practices, moving from fear and bias towards greater recognition of professional responsibility and human rights:

*“...before, we were rather afraid to attend to them. Now we understand confidentiality and rights...”*

*“...before, we let our cultural belief get the better part of our judgement. Now we understand every human has rights to dignity and health...”*

These narratives reflect processes of normative and cognitive transformation, likely facilitated by sustained stakeholder engagement and accountability dialogues. Such changes are critical for improving the quality and inclusivity of care, which in turn influences both initial uptake and long-term retention in HIV services [22]. The emphasis on confidentiality and non-discrimination is particularly important in criminalized settings, where breaches of trust can have severe legal and social consequences for clients.

The strengthening of referral pathways between community networks and LGBTQ friendly facilities further illustrates the importance of linkages mechanisms in bridging community and institutional systems. Effective referral systems reduce fragmentation, streamline access to care, and ensure continuity across the HIV care cascade from testing to treatment and viral suppression [15]. In this study, the expansion of referrals across all sites suggests the establishment of functional service delivery networks, capable of supporting increased demand generated at the community level.

The observed increase in viral load testing ( $n = 215$ ) is particularly noteworthy, as it indicates not only entry into care but also engagement with ongoing treatment monitoring, a key component of achieving viral suppression and reducing onward transmission. This aligns with global HIV targets, including the UNAIDS 95-95-95 framework, which emphasizes the importance of sustained engagement across the treatment continuum [36]. The ability of the intervention to facilitate both ART initiation and follow-up monitoring suggests progress toward improved retention and quality of care, rather than merely one-time service utilization.

From an integrated perspective, these findings provide strong evidence of multi-level synergy, where changes at one level reinforce and amplify outcomes at others. Specifically:

- Individual-level gains (knowledge, self-efficacy) increased readiness to seek care
- Community-level changes (reduced stigma, peer support) lowered social and psychological barriers
- Institutional-level improvements (provider attitudes, referral systems) enabled safe and equitable access to services

The interdependence is central to the effectiveness of the intervention and reflects a system-level transformation, rather than isolated improvements. Such integrated approaches are increasingly recognized as essential for addressing the complex and intersecting determinants of HIV vulnerability among key populations [5]. A key strength of these findings lies in its demonstration of causal plausibility within a real-world, non-experimental setting. While the absence of a control group limits definitive attribution, the coherence between intervention components, intermediate outcomes (knowledge, safety institutional change), and final outcomes (service uptake) provides a compelling narrative of impact, supported by both quantitative and qualitative evidence. This alignment across data sources enhances the credibility and transferability of the findings.

Nevertheless, it is important to acknowledge that increased uptake does not automatically equate to sustained retention or viral suppression, which require ongoing support and system-level stability. Future research should therefore examine longitudinal outcomes, including adherence and long-term health impacts. Additionally, while improvements were observed in selected facilities, broader health system transformation remains necessary to ensure equitable access at scale.

## Study Limitations

This study should be interpreted in light of several limitations, which reflect the ethical, operational, and contextual realities of conducting research among criminalized and hard-to-reach populations. In such settings, methodological trade-offs are often necessary to ensure participant safety, confidentiality, and feasibility.

First, the study employed purposive and snowball sampling strategies, which, while appropriate for engaging hidden and marginalized populations, may introduce selection bias by overrepresenting individuals already connected to community networks or services. As a result, the findings may not fully capture the experiences of more isolated or less visible LGBTQ individuals within the study setting.

Second, the reliance on self-reported data for sensitive topics such as stigma, gender-based violence (GBV), and healthcare utilization introduces the potential for recall and social desirability bias. Although measures were implemented to mitigate these risks, including the use of trained peer researchers, anonymized data collection, and the creation of safe and confidential environments; some degree of reporting bias cannot be excluded.

Third, the absence of a control or comparison group, combined with the use of descriptive pre–post analysis without inferential statistical testing, limits the ability to establish causal relationships between the intervention and observed outcomes. However, as an implementation research study conducted in a highly constrained environment, the primary objective was to assess feasibility, acceptability, and real-world applicability rather than to determine causal effects under controlled conditions. The use of mixed-methods triangulation provides additional contextual depth and supports the plausibility of observed associations.

Fourth, the study did not assess long-term outcomes along the HIV care continuum, such as retention in care, treatment adherence, or sustained viral suppression. Consequently, while improvements in service uptake were observed, the durability and long-term impact of these outcomes remain uncertain.

Fifth, the study did not control for potential confounding factors, including exposure to concurrent interventions, community-level influences, or external information sources such as media campaigns, which may have contributed to observed changes. Therefore, findings should be interpreted as indicative of trends and associations rather than definitive intervention effects.

Finally, the intervention relied substantially on community-based structures and peer-led systems, which, while effective in enhancing trust, reach, and acceptability, may face challenges related to sustainability, scalability, and resource dependency in the absence of sustained institutional support and enabling policy environments.

Despite these limitations, the study is strengthened by its mixed-methods design, large sample size, real-world implementation context, and the use of data triangulation to enhance credibility. The findings provide valuable implementation-level insights into the feasibility and potential effectiveness of community-led, rights-based interventions in addressing HIV-related and structural vulnerabilities among LGBTQ populations in criminalized and resource-limited settings.

## **Implications for Policy, Practice, and Future Research**

### **Policy and Programmatic Implications**

The findings highlight the necessity of integrating Human Rights-Based Approaches (HRBA) into HIV programming for LGBTQ populations, particularly in criminalized contexts. Policies that criminalize same-sex relationships continue to undermine public health efforts by reinforcing stigma, limiting access to services, and eroding trust in institutions. There is an urgent need for:

- Legal and policy reforms to decriminalize same-sex relationships and protect the rights of sexual and gender minorities
- Institutional accountability mechanisms to address discrimination within healthcare and justice systems
- Sustained investment in community-led interventions, which have demonstrated effectiveness in reaching and supporting marginalized populations

### **Practice Implications**

The study provides strong evidence for the effectiveness of multi-level, community-driven interventions that simultaneously address:

- Individual-level determinants (knowledge, self-efficacy)

- Community-level dynamics (stigma, social support)
- Institutional barriers (provider attitudes, service accessibility)

Programs should prioritize:

- Peer-led models as central components of HIV and GBV interventions
- Integrated service delivery, linking HIV care with GBV response and psychosocial support
- Strengthening referral systems between community networks and inclusive healthcare facilities.
- Sustainability which depends on institutional integration, policy support, and continued investment in community systems, highlighting the need for alignment between grassroots interventions and formal health systems.

## Future Research

Future studies should build on these findings by:

- Employing longitudinal designs to assess sustained outcomes, including retention in care and viral suppression
- Incorporate comparative or quasi-experimental approaches to strengthen causal inference
- Exploring the scalability and cost-effectiveness of multi-level, rights-based interventions
- Examining the experiences of underrepresented subgroups, including more isolated LGBTQ individuals and those outside established community networks.
- Incorporate quasi-experimental or controlled designs, longitudinal follow-up, and integration of clinical outcomes measures such as retention in care and viral suppression to strengthen causal inference and assess long-term impact.

From a broader perspective, these findings contribute to the growing body of evidence supporting rights-based and community-led HIV responses in criminalized settings. The study demonstrates that even with restrictive legal environments, it is possible to design and implement interventions that improve health outcomes, enhance access to justice, and strengthen community resilience. However, sustained impact will require parallel structural reforms, including decriminalization, institutional accountability, and continued investment in community-led systems [4,9].

## CONCLUSION

This study demonstrates that community-driven, rights-based, and multi-level interventions can effectively address structural barriers and improve access to HIV services and justice among LGBTQ populations in hostile legal environments. By aligning individual empowerment, community mobilization, and institutional engagement, the intervention created a coherent pathway from increased awareness and safety to tangible health outcomes, including ART initiation and viral load monitoring.

The findings highlight that structural determinants particularly criminalization, stigma, and institutional discrimination remain central barriers to HIV services access, and that addressing these requires more than biomedical solutions. Instead, integrated approaches that embed human rights, community leadership, and system-level change are essential for achieving meaningful and sustained impact.

Importantly, the study illustrates that even within highly constrained settings, it is possible to reconfigure systems of care and support through locally grounded, participatory strategies. However, the sustainability and scalability of such efforts depend on broader structural reforms and continued investment in community-led responses.

Findings from this study suggest that community-led, rights-based approaches may contribute to improved access to HIV and GBV services in similar context. However, further research using more rigorous designs is needed to assess effectiveness and scalability.

## Declaration

**Conflicts of Competing Interest** All the authors declare zero financial or interpersonal conflicts of interest that could have influenced the research or the results reported in this research paper.

**Availability of data** All information regarding this study is presented in this document.

**Ethical approval** Due to the sensitive nature of the study population and the restrictive socio-legal environment in which the research was conducted, obtaining formal institutional ethical approval posed potential risks to both participants and the implementing organization. As a result, the study was conducted as a community-based programmatic assessment rather than a formal clinical or experimental study. All procedures strictly adhered to internationally recognized ethical principles for research involving human participants, including voluntary participation, informed consent, confidentiality, and the protection of participants from harm. No personal identifiable information was collected, and all data were anonymized at the point of collection. Data collection was conducted in safe and secure environments, and participation did not expose individuals to additional legal or social risks. These safeguards were implemented to ensure that the rights, safety, and dignity of participants were fully protected throughout the study.

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