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# **Evaluation of Using Community Based Peer Navigators for Improving HIV Treatment Outcomes Among Antiretroviral Therapy Clients in Malawi Defense Force**

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#### Abstract

Introduction: Malawi Defence Force (MDF) implemented test-and-start strategy in 2016 to expedite initiation of antiretroviral therapy (ART) for individuals diagnosed with HIV. Despite these efforts, key indicators for the 95-95-95 targets, such as retention in care and viral load suppression rates, remained below optimal levels. To address this, MDF introduced community-based peer navigators in 2020 to support ART adherence. This study aimed to assess the impact of this intervention.

**Methods:** A mixed methods study was conducted where programmatic data was collected retrospectively from 7 sites to compare treatment interruption (ITT), return to treatment (RTT) levels and viral load indicators 18 months before and after introduction of community-based peer navigators.

**Results:** The median IIT and RTT was 308(IQR = 96) and 99(IQR = 67) in pre-intervention period respectively while in post intervention, the median IIT and RTT was 145(IQR = 47) and 160(IQR = 46) respectively. Treatment current (TX\_CURR) rate increased by 36.5% through back to care (B2C) and by 10.4% through new initiations. Out of 1,073 clients due for VL flagged on patient cards, 953(88.9%) had their blood samples taken compared to only 61.8% in pre-intervention period (p < 0.01).

**Discussion:** The involvement of peer navigators led to notable enhancements in program outcomes, particularly in re-engaging clients and improving viral load monitoring. Expanding the peer navigator model within the BTC initiative is recommended to sustain and build upon these gains.

**Themes:** Communicable Diseases, Epidemiology, Public Health and Nursing.

Keywords: Antiretroviral Therapy, ART Outcomes, Peer Navigators, Malawi Defense Force Clinics, Art Adherence

#### Introduction

Malawi continues to face one of the highest HIV prevalence rates globally, despite substantial progress in managing the epi-

demic. The prevalence of HIV among adults' ages 15 to 64 years in Malawi is 8.9 % [1]. Approximately one million people are currently living with the disease in Malawi [1, 2]. Alarmingly,

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prevalence within military settings, such as those served by the Malawi Defence Force (MDF), exceeds the national average, reaching 14.1% [3].

The introduction and scale-up of antiretroviral therapy (ART) has significantly improved the quality of life for people living with HIV (PLHIV), largely by suppressing viral replication to undetectable levels [4]. The rapid expansion of ART is considered one of the most extraordinary attainments in public health history. These advancements align with UNAIDS' 95-95-95 targets, which aim to end the HIV epidemic by 2030 [5]. However, attrition in ART programs remains a critical obstacle to achieving these goals. Discontinuation of treatment heightens risks of viral transmission, disease progression, and drug resistance, ultimately increasing morbidity and mortality rates [6, 7].

Fox and Rosen8 observed that large proportions of people eventually fall out of care after testing HIV-positive and initiating in care. In order to improve health outcomes in people living with HIV, adoption of evidence-based interventions (EBIs) using effective and transferable implementation strategies to optimize the delivery of healthcare is desirable. In recent years, the Malawi government, in collaboration with its technical and financial partners, has invested sufficient resources in public health interventions to improve retention of patients on ART and to increase ART coverage.

Previous research highlights significant dropout rates in ART programs across sub-Saharan Africa. Studies have shown that only 72% of patients remained on treatment three years after initiation, with loss to follow-up and mortality being the primary contributors. This attrition represents a significant barrier to sustainability and resource optimization in HIV treatment programs [8,9]. The Malawi Defence Force has faced similar challenges, with a 23.4% attrition rate among ART clients in 2019 and a viral suppression rate of 79.9%—both falling short of the UN-AIDS targets.

Following these revelations, health policy makers, health managers and providers have been exploring various strategies to improve ART outcomes including the use of peer navigators. Peer navigation is rooted in the concept of patient navigation, where vulnerable patients are directly assisted to help find their way through complex health care systems to obtain timely diagnosis and treatment [10]. A study by Shah, P et al, suggested that Peer Navigators were successful in promoting HIV testing, linkage to care and ART initiation [11]. In another pilot study in South Africa, the use of Peer Navigators emerged effective as it helped clients overcome feelings of shame through education and by modeling how to live successfully with HIV. The strategy further helped to address discrimination fears by helping clients disclose to trusted individuals [12].

In another study conducted in Mexico, the use of peer navigators was found useful in that the PNs were influential in educating participants about HIV, antiretroviral therapy (ART), linking participants to existing HIV care and ancillary services and in providing emotional and instrumental support to facilitate engagement in HIV treatment and ART adherence [13]. Another randomized trial study by Sheri et al14 on Impact of short message service and peer navigation on linkage to care and antiret-

roviral therapy initiation in South Africa found that peer navigation services significantly reduced time to linkage to HIV care in sub-Saharan Africa and that it helped to reduce time to ART initiation among men and non-pregnant women [14].

To address these gaps, the MDF adopted a peer navigator (PN) strategy in 2020, targeting retention, adherence, and viral suppression outcomes. Peer navigation leverages individuals with lived experience or a shared background to assist clients in navigating complex healthcare systems, overcoming stigma, and maintaining adherence to treatment. Globally, this approach has been effective in improving ART outcomes, particularly in settings where vulnerable populations face systemic barriers to care. This study aims to evaluate the impact of community-based peer navigators on improving HIV treatment outcomes, focusing on treatment retention, viral load testing coverage, and suppression among ART clients in MDF clinics.

# Methodology

#### **Study Design**

This was a mixed methods study where both quantitative and qualitative methods were used though it was skewed towards quantitative method. The quantitative part was a retrospective study design. The study was conducted in 7 MDF health facilities that constitute approximately 75% of the total ART cohort within the military health facilities. Under qualitative methods, purposive sampling was used to select 15 peer navigators for in-depth interviews (IDI)s to obtain insights of peer navigators' work.

#### **Data Sources**

Programmatic data was collected retrospectively from 7 MDF health facilities. The timeframe of data collected covered 18 months pre-intervention (January 2019 to June 2020) and 18 months post intervention (July 2020 to December 2021) periods. Outcome variables of interest included number of clients with treatment interruption (IIT), number of clients retained in treatment (RTT), viral load coverage and viral suppression. Clients were considered to have interrupted treatment if they did not report to the clinic for drug refill one month after their scheduled appointment date. On the other hand, a client was considered to have returned to treatment if they come back to clinic for drug refill any time after 90days of lost to follow up Retention in care was defined as having attended a clinic visit within 90 days of the expected follow-up date. Individuals who did not attend within the 90 days were defined as lost-to-follow-up (LTFU). We also conducted discussion with some peer navigators to learn the package of services they provide during their interactions with ART clients and challenges they encounter during their work.

# Data Analysis

Client data collected from the clients' records were entered into SPSS (version 20) for analysis. Descriptive analysis was used and Chi-square tests were conducted to determine differences in ART outcomes before and after introduction of peer navigators. Thematic analysis of the discussion was done to identify the peer navigator's service package and challenges.

# Results

## Peer Navigator Service Package

The peer navigators' service package incorporated several targeted interventions that significantly contributed to ART adher-

ence, retention in care, and improved treatment monitoring. Key components of the service package included: updating each client's locator forms, making pre-appointment calls 3 days prior to the visit for clients with phones, conducting daily tracing of clients within 7 days after missing appointments through phone and home visits, as well as conducting individual counseling/education on ART adherence, continuity of care and treatment monitoring. Details of service package are as follows:

# **Updating Locator Forms**

Peer navigators ensured that each client's locator forms were current, providing accurate contact and address details. This foundational step streamlined tracing efforts for clients who missed appointments, facilitating prompt interventions.

# **Pre-Appointment Reminders**

For clients with access to phones, peer navigators conducted reminder calls three days before scheduled appointments. This proactive measure reduced missed visits by reinforcing the importance of attendance and addressing any potential barriers in advance.

# **Active Tracing of Clients**

Clients who missed appointments were traced within seven days through phone calls and home visits. This immediate follow-up ensured timely re-engagement with care and minimized prolonged treatment interruptions.

## **Individualized Counseling and Education**

Peer navigators provided one-on-one counseling sessions focusing on ART adherence, the importance of continuity in care, and understanding treatment monitoring. These interactions helped build trust and addressed clients' concerns or misconceptions about treatment.

## **Outreach and Community Sensitization**

Extensive outreach activities raised awareness about ART and the benefits of maintaining treatment. Community sensitization helped to reduce stigma and encouraged clients to seek care without fear of judgment.

# **Support for Defaulting Clients**

For clients who had defaulted on treatment, peer navigators conducted tailored follow-ups to encourage re-engagement. This included addressing psychological barriers and logistical challenges that hindered their return to care.

# **Escorting Clients to Clinics**

When necessary, peer navigators physically escorted clients to healthcare facilities, particularly those who expressed anxiety or fear after a prolonged absence. This supportive approach reassured clients and facilitated their reintegration into the healthcare system.

These interventions collectively fostered an environment of personalized care and support, directly contributing to improved ART adherence and retention outcomes. Peer navigators acted as a vital link between clients and healthcare systems, addressing both logistical and psychosocial barriers to treatment continuity.

## **Total Number of ART Clients Alive on Treatment**

Results showed that before the intervention, the Treatment Current (TX CURR) was fluctuating and not steadily increasing particularly due to high attrition rates. From the period since introduction of peer navigators, TX CURR showed consistent increasing trend every quarter. The Treatment Current rate increased by 36.5% through back to care (B2C) and by 10.4% through new initiations.

#### **Treatment Interruption**

Treatment interruption (IIT) was defined as client missing a drug refill scheduled appointment for a minimum period of 2 weeks to a maximum period of 90 days beyond which they are declared lost-to-follow-up. Results show that IIT was high pre intervention and comparably low post intervention period. The Median IIT was 145(IQR=47) pre intervention, while for post intervention was 308(IQR=96) as shown in Figure below.

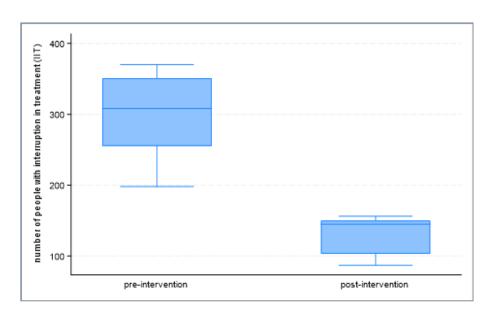


Figure 1: Box plot of IIT pre intervention and post intervention period.

## **Return to Treatment (RTT)**

Results show that RTT was low during the pre-intervention period and increased post intervention period. The Median RTT was high post intervention 160(IQR=46) compared to pre intervention period, 99(IQR=67) as shown n figure below.

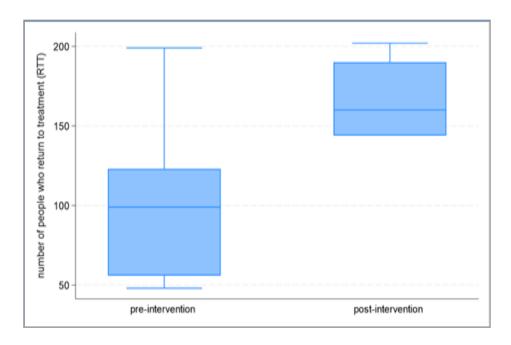


Figure 2: Box plot of RTT levels pre intervention and post intervention period

# **Viral Load Testing Coverage and Suppression**

Results showed that viral load coverage increased after engagement of community Peer Navigators. Out of 1,073 clients due for VL flagged on patient cards, 953(88.9%) had their blood samples taken compared to only 61. 8% in pre intervention pe-

riod (p < 0.01). Viral load suppression showed significant improvements from 87.6 pre intervention period to 96.1 post intervention (p-value <0.01). Additionally, results in the table show significant improvements in retention rates likely attributed to increases in RTT as previously shown in above sections .

Table 1: Summary of ART outcomes pre and post intervention periods

ART	Pre intervention period  Jan 2019-June 2020						Post intervention period July 2020-Dec 2021						OR	P-val-
Outcomes													(95%CI)	ue
Ever Registered	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
TX_CURR	5288	5390	5410	5441	5421	5577	5836	6132	6470	6812	7088	7114		
Attrition Rate (%)	4671	4487	4625	4745	4882	5096	5348	5773	6206	6554	6848	6850		
IIT	5.8	6.5	6.8	7.2	7.9	6.4	5.1	2.9	1.9	1.5	1.7	2.1	1.92 (1.79-3.66)	0.03
TX New	308	351	370	392	428	355	298	175	124	103	120	148		
RTT	111	90	94	135	111	126	190	184	140	155	120	116		
Retention (%)	56	67	48	38	30	69	112	198	187	156	141	164		
VL Coverage	88.3	83.2	85.5	87.2	90.1	91.4	91.6	94.1	95.9	96.2	96.6	96.3	4.43 (2.38-4.55)	<0.01
VL Suppression (%)	61.8% n=653	62.3% n=628	61.7% n=647	70.9% n=664	68.1% n=683	72.1% n=713	84.1% n=748	87.5% n=808	84.5% n=868	87.3% n=917	88.9% n=958	89.1% n=1073		
				87.6				94.5				96.1	5.59 (3.44-5.56)	<0.01

aPearson Chi squared, significant at p=0.05

OR: Odds Ratio

#### **Challenges encountered by Peer Navigators**

The study showed that the peer navigators had some challenges when doing their work. This included provision of incorrect locator information such as phone, village by the clients, long distances the navigators had to travel to the client homes, lack of equipment to support the navigators' movement, partial financial incentives, being stigmatized in the communities, frequent relocation of ART clients- making reaching them difficult.

#### **Discussion**

This study demonstrates that the introduction of peer navigators significantly improved key HIV treatment outcomes in the Malawi Defence Force clinics. Notable enhancements in treatment retention, viral load (VL) testing coverage, and suppression rates were observed. These findings emphasize the potential of community-based interventions to strengthen ART programs, particularly in high-prevalence and specialized settings such as military healthcare facilities [15].

The increase in treatment retention, as evidenced by higher backto-care (BTC) rates and reduced treatment interruption (IIT), highlights the critical role peer navigators play in addressing client barriers. Through personalized follow-ups, including phone calls and home visits, peer navigators provided clients with the support necessary to re-engage in care. These findings align with evidence from other settings, such as the United States and South Africa, where peer navigation interventions have been shown to improve retention rates among marginalized populations. These results are similar to findings of a study in the United States that showed that peer interventions potentially improved retention in primary care among subgroups of people living with HIV from racial/ethnic minority communities [16]. Similarly, other studies in Sub Saharan Africa have demonstrated positive effect of peer navigators support on retention to care [17-19]. Another study, also reported on the effects of peer navigation program effects on continuum of care outcomes [20]. Among others, peer navigation likely offers tailored interventions that provide interpersonal support to clients thereby enhancing adherence and retention in care. It also complements structural interventions by helping to overcome individuals' barriers to care and ART adherence [21].

Improvements in viral load testing coverage, from 61.8% pre-intervention to 88.9% post-intervention, further underscore the effectiveness of peer navigators. By flagging clients due for VL testing and sending reminders, peer navigators enhanced uptake of this crucial monitoring service. Enhanced retention in care likely contributed to the observed increase in viral suppression rates, from 87.6% pre-intervention to 96.1% post-intervention. These outcomes are consistent with findings from systematic reviews, which indicate that peer support interventions significantly enhance viral suppression in diverse. These results agree with several studies. For instance, results of a systematic review and metanalysis whose pooled analysis results suggested that deployment of community peer workers significantly improved viral suppression [22]. In another study, peer navigation intervention was successful at preventing declines in viral suppression among HIV-Positive men and transgender women released from jail, compared with standard transitional case management [23]. Similarly, peer navigation intervention resulted in improvements in viral suppression among youth with HIV in Nigeria [24, 25].

Despite these successes, the implementation of the peer navigator strategy faced notable challenges. Peer navigators reported difficulties in locating clients due to inaccurate information, long travel distances, and frequent relocations. Additionally, insufficient logistical support, such as transportation and financial incentives, hindered their ability to perform their roles effectively. Addressing these challenges through improved resource allocation and operational planning could amplify the impact of this intervention.

The study highlights the importance of tailoring peer navigation strategies to the unique social and structural contexts of the target population. While the MDF clinics achieved meaningful improvements, the full potential of the intervention may not have been realized due to implementation fidelity gaps. Future research should focus on process evaluations to identify factors that optimize peer navigator performance and client engagement.

#### **Conclusion and Recommendation**

The integration of peer navigators into ART programs in Malawi Defence Force clinics has proven to be a transformative approach, yielding substantial improvements in retention, viral load testing coverage, and suppression rates. These findings reinforce the value of peer navigation as a scalable strategy for enhancing ART outcomes, particularly in contexts with significant barriers to care. For sustained success, it is imperative to address logistical challenges faced by peer navigators, including mobility constraints, inadequate financial incentives, and inaccuracies in client locator information. Policymakers should consider institutionalizing peer navigation programs within healthcare systems, ensuring they are equipped with the necessary resources and support structures.

Future studies should explore the long-term impacts of peer navigation on ART outcomes and assess its applicability in other high-prevalence settings. Additionally, research should aim to refine peer navigation models by evaluating the quality of peer-client interactions and the effectiveness of tailored interventions in diverse populations. By leveraging the lived experiences and community trust of peer navigators, HIV programs can overcome persistent barriers to care, ultimately advancing the global agenda of ending the HIV epidemic by 2030.

#### **Conflict of Interest**

The authors declare no conflict of interest.

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