ORIGINAL RESEARCH ARTICLE

Treatment uptake following Human Papillomavirus testing and Visual Inspection with Acetic Acid-Based 'Screen and-Treat' cervical cancer screening among women living with Human Immunodeficiency Virus in Cameroon: A Pilot Study

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Abstract

Women Living with HIV (WLWH) are at increased risk of cervical cancer and should be prioritized for screening. We compared HPV-based and VIA-based screen-and-treat strategies integrated into HIV care in Cameroon. In this comparative study, 325 WLWH aged ≥25 years underwent either HPV DNA testing (n=177) or VIA screening (n=148). Overall, 74 (22.8%) women screened positive, including 64 (86.5%) in the HPV group and 10 (13.5%) in the VIA group. Only 14 (18.9%) of positive women received treatment. Among HPV-positive women, 5 had VIA-positive lesions and 4 (80%) received treatment, compared with 1 of 10 (10%) VIA-positive women in the VIA group. HPV testing identified substantially more women requiring follow-up than VIA, likely because of the high prevalence of Type 3 transformation zones. However, treatment uptake was low, highlighting the importance to strengthen linkage-to-treatment strategies among WLWH. *(Afr J Reprod Health 2026; 30 [22]: 52-61).*

Keywords: Women living with HIV; Cervical cancer screening; Human Papillomavirus; Treatment uptake; Cameroon

Résumé

Les femmes vivant avec le HIV (FVHIV) ont un risque accru de cancer du col de l'utérus et devraient être prioritaires pour le dépistage. Nous avons comparé des stratégies de dépistage et de traitement basées sur le HPV et le VIA intégrées dans les soins du HIV au Cameroun. Dans cette étude comparative, 325 FVHIV âgées de 25 ans ou plus ont subi soit un test d'HPV (n=177), soit un dépistage VIA (n=148). Au total, 74 femmes (22,8 %) ont été testées positives, dont 64 (86,5 %) dans le groupe HPV et 10 (13,5 %) dans le groupe VIA. Seulement 14 femmes positives (18,9 %) ont reçu un traitement. Parmi les femmes positives au HPV, 5 avaient des lésions positives au VIA et 4 (80 %) ont été traitées, contre 1 femme sur 10 (10 %) positives au VIA dans le groupe VIA. Le test HPV a identifié beaucoup plus de femmes nécessitant un suivi que le VIA, probablement en raison de la forte prévalence des zones de transformation de Type 3. Cependant, le taux de traitement était faible, ce qui souligne l'importance de renforcer les stratégies de liaison au traitement chez les FVHIV. *(Afr J Reprod Health 2026; 30 [22]: 52-61).*

Mots-clés: Femmes vivant avec le HIV, Dépistage du cancer du col de l'utérus, Papillomavirus humain, Prise en charge du traitement, Camerou

Introduction

Women Living with HIV (WLWH) have up to 6-fold heightened risk of acquiring cervical dysplasia and cancer compared to HIV-negative women.[1,2] Therefore, the prevalence of cervical cancer in Sub-Saharan Africa (SSA), where the HIV burden is higher,[3,4] is expected to be elevated. While it has been shown that integration of preventing cervical cancer using visual inspection with acetic acid (VIA) into HIV care is feasible in SSA,[5,6] it is unknown whether the integration of Human Papillomavirus (HPV)-based cervical cancer prevention is equally feasible and effective. The

World Health Organization (WHO) in 2021, advocated that all cervical cancer prevention programs worldwide, including VIA-based programs, should transition to HPV-based programs immediately.[7] This is because the reduction of cervical cancer-associated morbidity and mortality is more significant with HPV-based programs compared to VIA-based programs,[7] Since setting up a program for HPV-based cervical cancer prevention is costly, it is unlikely that the majority of cervical cancer prevention programs in SSA will transition to HPV-based programs in the predictable future as this change will probably occur gradually over time. It is, therefore, necessary to assess the feasibility of HPV-based prevention of cervical cancer in SSA to inform this imminent transition.

There are two main HPV screening approaches proposed by WHO for women from aged 30 and (or from aged 25 if they are HIV positive): the "HPV-based screen -and-treat approach", and the "HPV-based screen -triage-and-treat approach." For the HPV-based "screen -and-treat" approach, all women with positive high-risk HPV are treated, but VIA/colposcopy is conducted first to verify the presence of a precancerous/cancerous lesion. Those who have evident clinical lesions are treated contingent on the appearance of the lesion.

Those who do not have any evident lesions on the VIA are treated by ablation. For the HPV-based "screen -triage-and-treat" approach, every woman positive for HPV is triaged with an additional test, cytology or VIA/colposcopy, and the management is based on the outcomes of the triage test: if the triage result is positive, the woman is treated; if not, she is untreated,[7]

Three models of integrating the prevention of cervical cancer into HIV care have been described: 1) integration within the same HIV clinic through capacity building of the existing staff, 2) integration through colocation of the two services within the same institution, and 3) integration through multifaceted coordination across the care pathway,[6] Every model has its unique advantages and disadvantages. The model of integration within the same clinic is associated with limited loss to follow-up compared to the other models but it is more costly to implement.[6]

With the advent of antiretroviral treatment (ART), WLWH women now live longer, increasing their overall risk of cervical cancer,[6] Failure to integrate the prevention of cervical cancer into HIV care services is a big disservice to the boundless successes that have been registered in the fight against HIV.[8]

Despite increasing global recommendations to transition from VIA-based to HPV-based cervical cancer screening, evidence comparing the performance of these two screening strategies when integrated into HIV care in low-resource settings remains limited. The novelty of this study lies in its direct comparison of HPV-based and VIA-based screen-and-treat approaches among WLWH within a co-located HIV care and cervical cancer prevention service in Cameroon. In this study, screen-and-treat refers to a strategy in which women who screen positive are managed according to treatment eligibility without requiring histologic confirmation before treatment. Treatment uptake is defined as the proportion of treatment-eligible women who received the recommended treatment, while screening positivity refers to the proportion of women with a positive screening result. By evaluating both screening positivity and treatment uptake, this study provides practical evidence on the effectiveness of integrating contemporary HPV-based screening into HIV care in a resource-constrained setting. The overarching goal of this study was to compare an HPV-based and VIA-based 'screen-and-treat' cervical cancer screening strategies integrated into HIV care by examining screening positivity and treatment acceptance among WLWH in Cameroon. This was accomplished through the comparison of the integration of an "HPV-based screen -and-treat" and a "VIA-based see-and-treat" strategy into routine HIV care for WLWH. Prioritizing cervical cancer prevention among WLWH has the potential to significantly reduce cervical cancer-associated morbidity and mortality among these susceptible women who are most at higher risk for acquiring cervical cancer, and this aligns with the WHO cervical cancer elimination strategy by 2030. Our principal hypothesis was that, treatment uptake among treatment eligible women will be similar in both approaches; the VIA-based approach and the HPV-based approach.

Methods

We conducted a comparative study of two convenient groups of HIV-positive women; a group screened primarily by the Human Papillomavirus DNA (HPV Group) and a group screened primarily by Visual Inspection with Acetic Acid (VIA) (VIA Group), using the screen -and-treat approach.

The setting

The study took place at the Nkwen Baptist Hospital (NBH), a large institution of the CBCHS located in Bamenda, the Northwest Region of Cameroon.

NBH has an enrollment of 4,000 persons on antiretroviral treatment (ART), of whom over 60% are women.

The CBCHS is a huge faith-based health care structure with a setup of 95 health facilities in 8 of the 10 regions of Cameroon. The CBCHS runs a large program for HIV Care and Treatment with funding from CDC/PEPFAR in three of the 10 regions of Cameroon. The CBCHS currently supports over 95,000 people on ART in 80 health facilities. The CBCHS also runs the biggest cervical cancer prevention platform in Cameroon, called the Women's Health Program (WHP). The WHP has screened over 150,000 women for cervical cancer. The program started in 2007 as a VIA-based program using Visual Inspection of Acetic Acid and Lugol's Iodine (VIA-VILI) enhanced by digital cervicography (DC)[9] DC involves the utilization of a camera with a macro-conversion lens to take actual, greatly amplified cervical pictures projected onto a television screen so that the provider and the woman see the cervix real time simultaneously, simulating video colposcopy.[10] In 2020, WHP added HPV testing with self-collected samples in some of its sites. Therefore, WHP runs HPV-based program in some of its sites that have access to HPV testing while the other sites continue to use the VIA-based approach.

Of the three models of integrating the prevention of cervical cancer into HIV Care, in this study, we employed the model of integration through the colocation of the two services within the same institution. This is because NBH already has a well-established WHP clinic that renders comprehensive cervical cancer screening and prevention services. This facilitated bi-directional referrals of these women between the two clinics: the HIV Care Clinic and the Cervical Cancer Screening Clinic.

The procedure

WLWH receiving HIV care at NBH, aged 25 and above, were prospectively classified into two non-randomized groups based on the type of screening test. One group was screened using HPV DNA (the HPV Group), and the other group was screened using VIA-DC (the VIA Group). A referral card was established that was utilized to refer the eligible women from the HIV Care Clinic to the WHP Clinic. The participants who were enrolled in the first half of the study were assigned to the HPV Group while those recruited in second half of the study were assigned to the VIA Group. The data collection took place from January to September 2023. Randomization was not performed because this pilot study was designed to evaluate the operational feasibility of integrating two screening approaches within routine service delivery. Participants were consecutively recruited from the HIV clinic, and allocation was determined by the timing of enrollment, with women enrolled during the first phase assigned to the HPV group and those enrolled during the second phase assigned to the VIA group. This sequential allocation approach reflected real-world program implementation and resource availability.

In 2020, WHP added HPV testing with self-collected samples using AmpFire HPV testing for women from the age of 30 (or ≥25 years if they are HIV positive) in some of its sites. The AmpFire HPV technology manufactured by Atila BioSystems, Sunnyvale, CA, USA, is a relatively new HPV detection technology that uses a multiplex isothermal real-time fluorescent detection assay and can detect 14 oncogenic HPV types while genotyping types 16 and 18 simultaneously,[11] That is, the results are presented in three panels: the HPV 16 panel, the HPV 18 panel, and a combination of the other 12 HPV types. The main advantage of AmpFire is that HPV can be detected directly from raw samples like dry swab samples, and the time from sample to result is just an hour. In addition, it does not require batchingand can be definitely executed in a clinical location[11]

The HPV Group

HPV specimens were self-collected per WHP guidelines and handed to the WHP clinic staff. The specimens were appropriately labeled by the clinic staff and shipped to a WHP facility in Yaoundé for analysis. In the lab, specimens were processed according to the manufacturer's protocol using the AmpFire platform and interpreted as positive or negative based on fluorescence signals generated during real-time amplification.[11] The results were emailed to the project staff at NBH within a week. Patients were then called and informed of the availability of their results. Those with positive HPV were further screened with VIA-DC. Those positive for the VIA-DC were treated according to the appearance of the lesion and the treatment was offered on the same day.

VIA Group:

Those in the VIA group were screened only with VIA-DC per the program guidelines; 5% acetic acid was applied to the cervix after insertion of a disposable bi-valve vaginal speculum with a cotton ball and the cervix was evaluated two minutes later for acetowhite changes.[13] Same day treatment was provided to the VIA positives.

Treatment

In both Groups, the treatment decision was based on VIA-DC results. Cervical precancers that met ablation eligibility were provided thermal ablation (TA) and lesions that were eligible for large loop excision of the transformation zone (LLETZ) were provided LLETZ[12] Those needing TA were provided same-day treatment, while those needing LLETZ treatment were scheduled within a month. Biopsy was done on lesions that had suspicions of invasive cervical cancer (ICC), and if the histopathology results confirmed the ICC, the woman was referred to a specialized hospital for proper treatment. For the HPV Group, TA was offered to all those positive for HPV and had no lesion on VIA-DC.

VIA-DC result was reported as positive or negative. A positive VIA-DC represented any acetowhite lesion that appeared after the application of 5% acetic acid. VIA-DC was considered negative if there was no acetowhite lesion irrespective of the type of Transformation Zone (TZ). Therefore, all inadequate findings were classified as negative. Treatment uptake was utilized to measure the success in both Groups. That is, to measure success, the proportion of treatment acceptance among treatment eligible women in the Group was used.

We used the WHO clinical guidelines in treating VIA-DC positive lesions for TA as follows; 1. No suspicion of ICC or glandular disease, 2. The entire TZ and the entire lesion are fully visible, 3. Lesion has no extension into the endocervical canal, 4. Lesion is not greater than 75% of TZ. For LLETZ, the criteria were 1. Lesion extends into the endocervical canal, 2. lesion covers over 75% of TZ or too large for adequate ablation, 3. Histology or suspicion for high-grade disease such as coarse punctations and mosaicism, 4. No suspicion of ICC.[12] Though TA was offered on the spot for participants needing TA and LLETZ was provided within a month for those needing LLETZ, all participants were given up to four months to show up for treatment before they were deemed to be lost to follow.

Data analysis plan

Chi-square tests were utilized to compare participants' categorical characteristics, and t-tests and Fisher's exact tests (as needed) were used to compare participants' continuous variables by HPV Group and VIA Group. Variables with $p<0.05$ in the bivariate analysis were incorporated in the multivariable analyses. The proportions of women who received treatment per Group were also calculated and compared between them.

Ethical considerations

Institutional Review Board (IRB) approval was received from the Cameroon Baptist Convention Health Services (CBCHS) # IRB2022-63 and the University of Alabama at Birmingham (UAB) # IRB-300009970. Informed consents were signed by the participants, and the data assembled conformed with appropriate patient data safety policies and regulations. This research was performed in compliance with the Helsinki Declaration.

Results

A total of 325 Women Living with HIV (WLWH) were screened as follows: HPV Group, N= 177 (54.5%) and VIA Group, N= 148 (45.5%) (Table 1). Among the 325 women screened, 74 (22.8%) were either HPV and/or VIA positive. Of these 74, 64 (86.5%) were of the HPV Group and 10 (13.5%) were of the VIA Group. In the HPV Group, the prevalence of HPV Types was as follows: HPV 18:

Table 1: Participants' characteristics according to VIA Group and HPV Group (N=325)

Characteristics	VIA Group N=148 (45.5%, 95%CI: 40.1%-51.0%)	HPV group N=177 (54.5%, 95%CI: 49.1%-59.9%)	P Value
Age			0.107
<50 yrs	86 (52.7)	109 (61.6)	
≥50 yrs	70 (47.3)	68 (38.4)	
Marital Status *miss 8			0.052
Married	55 (37.9)	83 (48.5)	
Others	90 (62.1)	88 (51.5)	
EducationalLevel *miss 4			0.108
<8 yrs			
≥ 8 yrs	90 (60.8)	120 (69.4)	
	58 (39.2)	53 (30.6)	
Occupation *miss2			0.085
Domestic Worker/housewife/farmer	60 (40.8)	89 (50.6)	
Trader/business	39 (26.5)	48 (27.3)	

Others	48 (32.7)	39 (22.2)	
Viral load N=305			0.001
<40	127 (88.2)	158 (98.1)	

Table 2: Participants' characteristics according to treatment eligibility

	Treatment Eligible Women		P value
	VIA Group N=10 (13.5%, CI: 5.7%-21.3%)	HPV Group N=64 86.5%, CI: 78.7%-94.3%)	
Age			0.036
<50 yrs	9 (90.0)	32 (50.0)	
≥50 yrs	1 (10.0)	32 (50.0)	
Marital Status *miss 5			0.285
Married	6 (66.7)	26 (43.3)	
Others	3 (33.3)	34 (56.70	
Educational Level *miss3			1.000
<8 yrs	7 (70.0)	43 (70.5)	
≥ 8 yrs	3 (30.0)	18 (29.5)	
Occupation *miss1			0.498
Domestic Worker/housewife/farmer	3 (30.)	31 (49.2)	
Trader/business			
Others	4 (40.0)	19 (30.2)	
	3 (30.0)	13 (20.6)	
Viral load *miss5			0.053
<40	8 (80.0)	58 (98.3)	
ARVs Treatment Regimen *miss 2			1.000
8A			
Others	8 (80.0)	50 (80.7)	
	2 (20.0)	12 (19.3)	
***Treated**	1 (10.0)	13 (20.3)	0.676
****VIA Positive Treated**	1 (10.0)	4 (30.8)	0.357

**A total of 74 women had treatment eligibility and 14 received treatment*
***A total of 5 patients who tested VIA-DC positive received treatment; 4 from the HPV group and 1 from the VIA group*

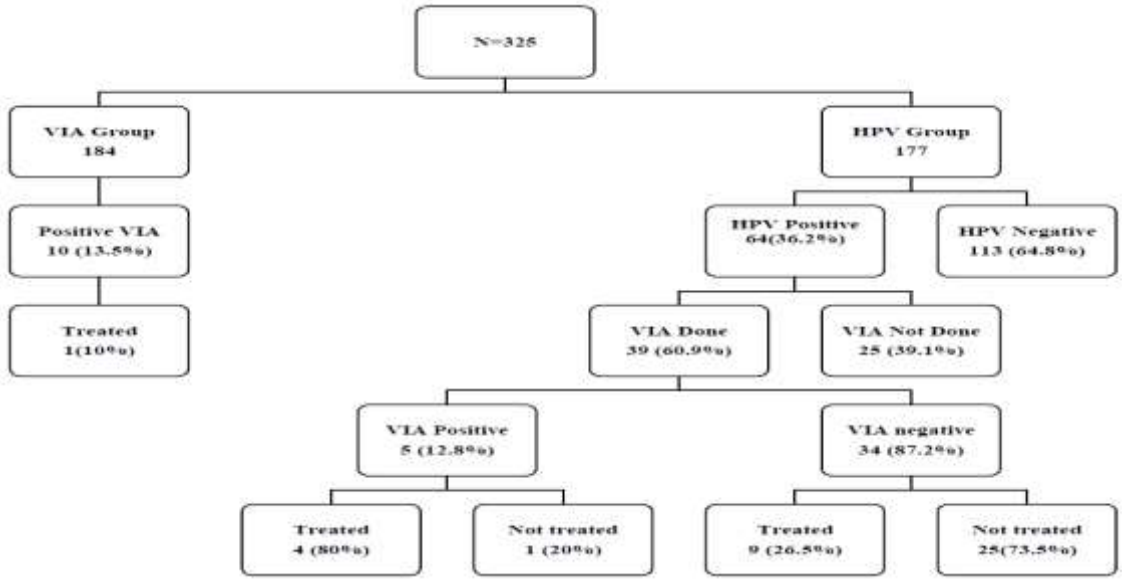

Figure 1: Flow diagram activities

3/64=4.7%, HPV 16: 12/64=18.8%, other HPV types, 51/64=79.7% (patients might be co-infected with several HPV types).

Table 1 shows the participants' characteristics according to HPV Group and VIA Group. Of the 74 women who had treatment eligibility, only 14 (18.9%) received treatment while 60 (81.1%) did not receive treatment. According to Table 2, there were more treatment-eligible women in the HPV Group than in the VIA Group.Women less than 50 years were more likely to be positive for VIA compared to those over 50 years ($p = 0.036$). Among the 10 women in the VIA Group who were VIA-DC positive, only 1 (10%) received treatment. Whereas, among the 5 women with VIA-DC positive lesions in the HPV Group, 4 (80%) received treatment (Figure 1).

Women who were positive for both HPV and VIA were more likely to accept treatment than those who were positive just for VIA-DC or HPV. In this study, a total of 36.2% of participants in the HPV Group had treatment eligibility compared to only 6.7 % in the VIA Group ($p<0.001$). Among the 36.2% treatment-eligible women in the HPV Group, 5/64 (9.4%) had VIA-DC positive lesions. Not shown, the Transformation Zone (TZ) type of the women in the VIA Group showed a high prevalence of type 3 TZ of 82.4%.

Discussion

Our study piloted the integration of a "Screen and Treat" HPV-based cervical cancer prevention program vis-à-vis VIA-based cervical cancer prevention, taking into account the collocation of an HIV Care and Treatment Center and a cervical cancer prevention program clinic in the same hospital[6] We had better screening outcomes with HPV as primary test compared to Visual Inspection with Acetic Acid enhanced by Digital Cervicography (VIA-DC) as primary test. The efficiency of VIA was limited by the elevated prevalence of type 3 Transformation Zone (TZ) in our cohort. The overall treatment uptake was low (18.9%), signifying poor success. In our earlier work in Cameroon, we found treatment uptake of 55.9% in the general population[13] In a Namibian study, treatment uptake was as high as 82% in the general population.[14] The very low treatment uptake among Women Living with HIV (WLWH) is very concerning and calls for further investigation. WLWH have potentials for higher treatment rates because of their frequent visits to the hospital compared to their counterparts without HIV. Some women in our cohort indicated the inability to adhere to the one-month mandatory s period of abstinence post-treatment. This calls for further studies to examine the reasons for their reluctance in the one-month abstinence. In our previous work in Cameroon, we discovered a very low treatment acceptance among Female Sex Workers (FSWs), and this was associated to the reality that they earn their living through sex work,[15] Since the HIV prevalence among FSWs is greater than that of the general population, it could be that the women we studied were coincidentally FSWs. Unfortunately, we did not collect sex work status in this study.

Contrary to our findings, a Nigerian study that piloted the HPV-based "screen and treat" approach into HIV Care found a treatment uptake of up to 95%,[16] Conversely, the study was constrained by a little sample size of 98 women. In addition, the authors asserted that their participants were purposefully selected. The reasons why they did a purposeful sampling in a quantitative study were not explained. This might have introduced a bias in their research for the reason that they might have chosen just participants who were likely to accept treatment. One advantage of this Nigerian study is that their HPV analyses were done on the spot, unlike in our study where they were shipped to a faraway Region for analysis. One more difference between our study and the Nigerian study is that we piloted the model of colocation of the HIV care and cervical cancer prevention clinics in the same hospital, while in Nigeria, they piloted the integration of cervical cancer prevention within the same HIV clinic. Conversely, their narrative did not specify if they used the same staff in the HIV clinic for cervical cancer screening or if the staff were brought in from another unit.

Surprisingly, the treatment uptake in the HPV Group was greater than that of the VIA Group. One would have anticipated higher treatment rates in the VIA Group because the VIA results were available on the spot and treatment was offered on the spot. Contrary to the VIA Group, participants in the HPV Group had to provide a specimen for HPV testing, wait for the results in a week, and then the positives had to undergo VIA-DC before treatment was offered. The reason for the poorer treatment uptake in the VIA Group is unclear.

Just like the Nigerian study, a Kenyan study has reported that the integration of cervical cancer screening into HIV Care and Treatment is very feasible in Sub Saharan Africa (SSA). This study reported a feasibility rate of 64.5%.[17]

However, the study did not utilize treatment uptake as a measurement for successful integration. A successful cervical cancer prevention program cannot be measured by the number of women screened but by the number of treatment-eligible women who receive treatment.[13,18] The screening of women for cervical cancer without appropriate treatment of the treatment eligible patients cannot contribute to the eliminate of cervical cancer. In our study, the women accepted screening in their hundreds, but we will be doing a disservice to conclude that this was successful without taking into account the treatment uptake.

The TZ was systematically assessed on all the women in the VIA Group. Surprisingly, type 3 TZ was highly prevalent at 82.4%. The prevalence of type 3 TZ increases with advancing age and culminate in the postmenopausal years.[12,19] The current HIV population is aging as the HIV incidence is on the decline.[20] So, it is likely that this high type 3 TZ prevalence will persist in this population as lesser younger women get infected with HIV. Also, it is unknown if HIV treatment accelerates the development of type 3 TZ; a gap requiring further investigation. The VIA test performs poorly in women with type 3 TZ due to the inability to completely visualize the TZ. Therefore, our results in the VIA Group (with very low positivity rate) might be misleading as these results are inadequate and not truly negative. We will therefore not recommend VIA for this aging population of WLWH. HPV testing should be prioritized for these vulnerable women and development of low-cost HPV testing devices will play a big role. HPV 18 had the lowest prevalence. In our study, the prevalence of HPV 16 and 18 was lesser than that of the other 12 HPV types present in the AmpFire platform aligning with our preceding work whereby we performed HPV full genotyping among 600 FSWs in the three main cities of Cameroon. In that study, HPV 18 had the least prevalence of 2.8% followed by HPV 16 with 5.2%. HPV 51 had the greatest prevalence (14%), followed by HPV 53 (12.4%) and HPV 52 (12.2%).[15] According to current literature, HPV 16 and 18 are the most prevalent oncogenic types worldwide.[21,22] This appears to be the reverse in Cameroon. Larger prospective studies are needed to examine this phenomenon.

The findings of this study have important implications for the global cervical cancer elimination efforts in low resource settings, particularly among WLWH who remain disproportionately affected by cervical cancer[1] Although HPV-based screening identified substantially more women requiring follow-up than VIA-based screening, the benefits of The participants were not randomly assigned into the two groups which is a th enriched reat to our internal validity improved detection may not be fully realized without effective strategies to ensure linkage to treatment. Our results underscore that screening coverage alone is an insufficient indicator of program success; rather, successful cervical cancer prevention requires completion of the entire continuum of care from screening to treatment[13] The low treatment uptake observed in this study highlights the need for implementation strategies that address patient, provider, and health system-level barriers, including timely communication of results, treatment accessibility, patient education, and retention in care. These challenges are common across many resource-constrained settings and should be considered when countries transition from VIA-based to HPV-based cervical cancer screening in pursuit of the WHO cervical cancer elimination agenda.

Strengths and weaknesses

The major strength of this current study is that it is among the first studies to pilot the integration of HPV-based cervical cancer prevention vis-à-vis VIA-based cervical cancer prevention into HIV Care and Treatment. Additionally, we piloted the integration based on collocation between the HIV care clinic and the cervical cancer prevention clinic in the same hospital. So, our study environment was the ideal working environment. Moreover, our success of integration was measured by treatment uptake for treatment-eligible patients.

The study had some weaknesses, which include: 1. The participants were not randomly assigned into the two groups which is a treat to our internal validity, 2. The HPV analyzer was not available in the study hospital, and specimens had to be shipped to a hospital in a faraway region for analysis. This contributed to prolonging results time, thus affecting triage and treatment uptake in the HPV Group, 3. The sample size of the treatment-eligible women of the VIA Group was very small, and this made it somewhat difficult to compare treatment uptake between the two groups adequately, 4. Participants were allocated based on time of enrollment where the first half of participants were allocated to the HPV Group and the second half to the VIA Group. This introduced potential internal validity threats such as temporal allocation bias. This is because the groups were defined by calendar time and any temporal change in patient flow, sociopolitical factors, and patient

awareness could influence outcomes independently of the screening strategy.
Our next step is to scale up the integration of HPV-based cervical cancer prevention into HIV Care through colocation of HIV clinic and cervical cancer screening clinic through an Implementation Science while addressing low treatment uptake. We will also further investigate the high prevalence of type 3 TZ in this population and verify if it has an association with HIV treatment.

Implications for policy and practice

The findings of this study support prioritizing HPV-based screening over VIA-based screening for WLWH, particularly in populations with a high prevalence of Type 3 transformation zones, where VIA performance may be suboptimal. Policymakers should ensure that the transition to HPV-based screening is accompanied by strong linkage-to-treatment interventions, as screening alone will not reduce cervical cancer burden without timely treatment of women who screen positive. Health programs integrating cervical cancer prevention into HIV care should therefore focus not only on increasing screening coverage but also on improving treatment uptake and retention along the continuum of care.

Conclusion

HPV is preferable over VIA in WLWH due to high prevalence of Type 3 TZ. The overall treatment uptake among treatment-eligible women was low. An effective cervical cancer prevention integration into HIV Care has to be correlated with high treatment uptake among the treatment-eligible patients. The reasons for the poor treatment uptake among treatment-eligible WLWH has to be carefully studied in order to propose strategies that can overcome the identified barriers.

Availability of data and materials

All data generated or analyzed for this study have been included in this published article

Conflict of interest

The authors have no competing interest to declare.

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Authors' contributions

Conception: SM, Data Acquisition: KN; JA; Data Analysis: YY; Writing the Manuscript: SM, IS, AT, PT. All authors approved the manuscript

AI use

AI was not used in the writing or development of any portion of this manuscript.

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