

ORIGINAL RESEARCH



Effectiveness of Integrating a Peer Education Program to Improve HIV Service Uptake Among University Students: Evidence from Malawi University of Business and Applied Sciences

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Abstract

Introduction

Although peer education programs are crucial in Malawi, there is paucity of data on their effect on uptake of HIV services among students in colleges. This study assessed the effectiveness of integrating a peer educators' program in enhancing HIV services uptake among students at Malawi University of Business and Applied Sciences

Methods

This was a complementary mixed-methods study. The quantitative component employed a retrospective comparative pre-post design to assess changes in HIV service utilization before and after integration of the peer educator programme. Quantitative data on HIV service utilization provided by the MUBAS campus clinic were obtained for 12-month period before integration of the peer educator programme and 12-month period following its integration. Comparative analysis and Z-test were performed to compare the proportions of students accessing HIV service before and after integration of the program. An exploratory qualitative study used 12 key informant interviews [KIIs] to explore barriers and facilitators in the implementation of the program. Data were analysed using a framework method of analysis.

Results

The study findings showed that in 2023, before the integration of the peer educator program, a total number of 1,875 clients accessed HIV services compared to 2,579 clients who accessed the services in 2024. This indicates a 37.55% percentage increase [Z-value of +12.418 and $p = 2.09 \times 10^{-35}$]. HIV self-test kit distribution increased by 241% following the integration of peer educators, with a Z-value of +20.544 and $p = 8.68 \times 10^{-94}$. Participants regarded the peer educator program as effective in improving students' knowledge, related to HIV and SRHR, facilitating access to sexual and reproductive health services and promoting health seeking behaviour among students at MUBAS.

Conclusions

The integration of peer educator programs in services distribution, demonstrated to be an effective model to improve access to HIV services among young people in higher education institutions

Keywords: Peer educator program, Sexual Reproductive Health, HIV and AIDS, HIV prevention services, University Students.

Introduction

Globally 39.9 million people were living with HIV in 2023, with Eastern and Southern Africa being the most affected region, accounting for 20.8 million cases¹. HIV and AIDS has affected all ages, including young people. HIV-related deaths among young people have more than tripled since 2000^{2,3}, making HIV and AIDS the second cause of death among adolescents worldwide⁴.

According to the Malawi Population-based HIV Impact Assessment survey done in 2020-2021, Malawi had approximately 946,000 adults living with HIV, representing an HIV prevalence of 8.9% among adults⁵. With 20,000 new HIV infections which included 9,000 new infections among the age group 15-24 and 8,000 new infections among the age group 25-34, counting to a total of 17,000 new HIV infections representing 85% of all HIV new infections⁵. This shows an increase in new HIV infections among the youth in the age group of 15-34 years which is an age group

commonly enrolled in higher education institutions across Malawi.

Young people are particularly vulnerable to HIV infection because of the physical, psychological, social, and economic attributes of adolescence and youth^{6,7}. As part of university life, peer pressure, and poverty, students often engage in risky sexual behaviors that expose them to HIV infection^{8,9}. Economic issues and the high cost of living drive some students to engage in transactional sex with older men and women to meet their daily expenses, including accommodation, tuition, and food^{3,8,10}. Other factors including multiple sex partners, multiple and concurrent sexual relationships, and lack of limited access to SRH and HIV preventive services put young people at risk¹⁰.

Overview of HIV service utilization

The government of Malawi through the Ministry of Health provide range of HIV services available for young people which include, HIV counseling and testing, Pre-Exposure

Prophylaxis [PrEP] to high-risk individuals, Post-Exposure Prophylaxis [PEP] as treatment after potential HIV exposure, Voluntary Medical Male Circumcision [VMMC], Female and Male condoms, behavior interventions, treatment and care services¹¹.

Despite the availability of these services, utilization has been low among young people. In 2021, among young men aged 15-24 years, 23.6 % had a voluntary male medical circumcision, 9.5% of young women aged 15-24 years and 20.6% of young men aged 15-24 years reported early sexual debut⁵. In Malawi adolescents have been shown to have high rates of unsuppressed viral load compared to adults having 26% and 9% respectively⁵. A study done in 35 health facilities across four districts that offered teen club services to Adolescents Living with HIV [ALHIV] receiving ART ages 10–19 years from July 2018 to September 2019, found 28% of adolescent living with HIV having unsuppressed viral load which indicated lack of adherence to treatment¹². The 2024 Malawi Demographic and Health Survey [MDHS] reported that only 37.8 % of young women age group 15-24 years and 59 % of young men age group 15-24 years reported using condoms during their last sexual encounter. Among the 20 to 24 years' age group, only 53% and 40.6% amongst women and men respectively had tested for HIV and received results within the year leading up to the survey¹³. According to DHS 2024 data, only 40% of young women and 39% of young men have thorough knowledge of HIV prevention¹³.

Malawi has made progress towards achieving UNAIDS' 95-95-95 targets with the aim that, by 2025, 95% of all people living with HIV know their status, 95% of those who were diagnosed positive be on antiretroviral therapy, and 95% of those who were on ART should have Viral load suppressed¹⁵. In 2021 Malawi had 88.3% of adults living with HIV who were aware of their HIV-positive status, among those with HIV-positive status, 97.9% were on ART, and 96.9% had suppressed viral load⁵. Regardless of the progress gap in knowledge and access to HIV testing, PEP and PrEP among young people in higher education institutions still hinder the attainment of the first 95% target⁹. In 2024, fifteen 15% of women age 15–49 had sexual intercourse with a person who was neither their husband or partner, and only 45% of these women reported using a condom during their most recent sexual intercourse⁶.

Peer educator program

Peer education is a program whereby trained peers teach and provide services to fellow peers. This approach is based on the principle that young people prefer to seek help for health-related concerns from their peers rather than adults or health experts¹⁴. The program involves training peer educators in current health knowledge and approaches to health education with the aim that they share the information with their fellow peers or group of young people to achieve positive health outcomes^{15,16}. Peer education programs focus on influencing young people's knowledge, attitudes, and change in behaviors with the aim of improving health and wellbeing¹⁷.

Several studies have shown that peer-to-peer interventions work, because of their ability to provide a free environment from judgement, acceptance, privacy and confidentiality. A randomized controlled trial done at a Malaysian public university on behavioral modification intervention programs related to HIV prevention led by peers showed that peer to peer programs are effective in significantly improving

knowledge related to HIV among students and reducing substance risk behavior¹⁶. Another global systematic review and meta-analysis study on 59 studies to examine the effectiveness of peer education in HIV prevention among high-risk groups found that peer education was associated with 36% decreased rates of HIV infection among overall high-risk, promoted HIV testing, condom use, and a time trend analysis revealed that peer education had a consistent effect on behavior change for over 24 months¹⁸.

Peer educator program at Malawi University of Business and Applied Sciences

In December 2023, Center for Community Health, Research and Youth Development [ChER-YoD], in collaboration with the Ministry of Health and Elizabeth Glaser Pediatric AIDS Foundation [EGPAF], an international organization working in the HIV and AIDS sector, jointly introduced a peer educators' program. The program was introduced in two higher education institutions which are public universities, namely Malawi University of Business and applied sciences in Blantyre and University of Malawi, Chancellor College in Zomba. A total of 20 students from Years 1 to 4, both males and females, residing within and outside campus were selected by university administrations as peer educators. The selected students underwent a two-weeks peer educator training program facilitated by the Ministry of Health, EGPAF and ChER-YoD. The program equipped the peer educators to act as plugs for convenient access to condoms, HIV self-testing kits, lubricants and emergency contraceptives. They also facilitate referrals for services such as HIV testing, PEP, PrEP, sexually transmitted infections, and post-violence care. The Ministry of Health certified the peer educators to become HIV self-testing distributors to provide self-testing kits to scale up HIV testing services among students.

Peer educators in colleges bridge the gap in the provision of HIV information and services by allowing convenient access and availability of HIV information and services¹⁵⁻¹⁷. Peer educators play an important role in the attainment of sustainable development goals 3.3 and 3.7, aiming at ending epidemics of AIDS, and ensuring universal access to sexual and reproductive healthcare services including family planning, information, and education¹⁹.

Regardless of the importance of peer education programs in Malawi, the data on the extent to which peer education programs could have an impact on HIV services uptake and its effect of this impact among students in colleges is still unknown. This study aimed at assessing the effectiveness of integrating a peer educators' program in enhancing HIV services uptake among students. The findings of the study aim to support, co-design and guide the scalability of the program to ensure students and staff in colleges have access to HIV services.

Methodology

Type of Study

This was a complementary mixed-methods study, a research approach that incorporated both quantitative and qualitative methods to provide comprehensive evaluation of peer educator program²⁰. This method allowed the collection and analysis of both quantitative data on uptake of HIV services and explored peer educators' experience of the program hence providing enough evidence and comprehensive understanding of the program.

Quantitative method

The quantitative component of the study employed a retrospective comparative pre-post design to assess changes in HIV service utilization before and after the integration of the peer educator programme²¹. Routinely collected quantitative data on HIV service utilization were extracted for two consecutive 12-month periods: January to December 2023, representing the period before the integration of the peer educator programme, and January to December 2024, representing the period following its integration. Data were obtained from the Malawi University of Business and Applied Sciences (MUBAS) clinic health database systems and registers, including monthly reports from peer educators documenting the distribution and uptake of HIV-related services. The analysis compared aggregate HIV service-utilization records between the two periods to describe changes in service uptake following the integration of the peer educator programme^{20,21}. The 2023 service-utilization data provided a pre-intervention reference period against which changes in HIV service utilization in 2024 were compared.

Exploratory qualitative design

This method was used as a qualitative component of the study; the method allowed the study to have an in-depth understanding of peer educators' experience of the program. Key Informant Interviews [KIIs] were used to explore barriers and facilitators in the implementation of peer educators' program²². Exploratory qualitative design provided in-depth information of peer educators' experiences and perceptions of the program that quantitative method did not provide²².

Study Setting and population

The study population included students and healthcare providers from Malawi University of Business and Applied Sciences. The study was conducted at the Malawi University of Business and Applied Sciences located in the city of Blantyre in Malawi. MUBAS has a student population of over 8,000, which are young people ranging from 16 to 34 years of age²³.

Sample size

Quantitative Sample size

The quantitative approach of this study utilized already available data which was extracted from MUBAS clinic health database systems which also included data from registers and peer educators monthly report on HIV services distribution. All available data was extracted on HIV services provided by the clinic a year before the integration of peer educators program from January 2023 to December 2023, and a year after the integration of peer educators program from 01 January 2024 to December 2024.

Qualitative sample size

A total of 12 key informant interviews [KII] were conducted. The participants for KIIs included 10 peer educators and 2 clinic staff who were purposefully selected because of their key role and direct involvement in the program. Purposive sampling method was used to select participants for KIIs including 10 peer educators and 2 MUBAS clinic staff. This method allowed selection of participants that are relevant and directly involved with the program to get in-depth understanding of their experience²⁴. The study selection criteria included a MUBAS peer educator or MUBAS clinic

staff, directly involved in HIV and family planning service provision, MUBAS clinic staff must be involved in peer educators' program.

Data collection procedures

Quantitative data collection

The quantitative component of this study utilized already available data from MUBAS clinic health database which include summary of data from clinic registers and peer educators' monthly reports on services distribution. The study used data extraction form that was pilot tested. The quantitative data collected included HIV services provided by the MUBAS campus clinic a year before the integration of the peer educators program from January to December 2023, and one year after the integration of the peer educators program from 01 January to 31st December 2024. The study collected data on the services the peer educators provide and the services they facilitate referral to the clinic as presented in Table 1.

Qualitative data collection

Qualitative data on barriers and facilitators for the program were collected using key informant interviews. Using the RE-AIM framework, the interview guide questions were divided to capture data on RE-AIM five components which include, Reach, Effectiveness, Implementation, Adoption, and Maintenance²⁵. A total of 12 key informant interviews were conducted in this study. Key informant interview guide tool was used to keep the discussions on point and focus on collecting accurate information on barriers and facilitators of peer educators' program.

Data collection exercise took place from 10th June to 30th June 2025. Data were collected by the principal researcher with help from 2 master's degree students from KUHeS who were trained in data collection methods and tools. Each interview lasted on average 30 minutes and ensured and data saturation English and Chichewa languages were used during the interview to allow participants to freely express their opinion. Field notes were collected while observing non-verbal interactions with the participant. The interviews were tape recorded to make sure all information obtained is accurate and of quality. Consent was obtained before recording.

Data trustworthiness

To ensure qualitative data collected is trustworthy, several steps were followed; firstly, a prolonged engagement with participants using KII guide which was reviewed and approved by COMREC ensured credibility. The KII guide was pretested and the results were reviewed by the study supervisor. To ensure dependability of data, data collection was done by KUHeS masters students who had undergone research method course. Field notes and tape recordings were collected from each interview to ensure no information is lost. The tools were informed and structured using the RE-AIM framework for program evaluation. Lastly, MUBAS clinic data officer and KUHeS data experts provided support and guidance. Transferability was supported by providing thick descriptions of the study setting, participants, and context, allowing readers to assess the applicability of the findings to other contexts with similar characteristics.

Data management/analysis

Quantitative data Analysis

All data were handled with strict privacy and confidentiality. Only data on HIV services provided was accessed, we did not have access to clients' names. Microsoft Excel software was used to extract, organize and clean the data for duplicates, errors and missing values. Cleaned data was stored in an excel sheet document protected by password. Data analysis was done using Stata software version 18. Descriptive statistics such as frequencies, percentages, and means were used to summarize demographic characteristics such as age and gender. Proportions were used to summarize students who accessed and used each type of HIV services before and after the peer educator program.

Comparative analysis was conducted to compare each HIV service uptake before and after integration of the program, compare services uptake among females and males, and across different age groups. Inferential statistics, specifically Z-test was performed to compare the proportions of students accessing HIV service across all services before and after the integration of the program. To respond to the study's first objective, Z-test was performed to compare proportions of students accessing HIV services before and after the peer educator program. A significance level of $p < 0.05$ was used to determine if the results were statistically significant. Finally, visual presentations such as graphs, tables and charts were used to summarize trends of service uptake across study periods both before and after integration of peer educator program.

Qualitative data

During transcription, any remaining identifiers were removed, and generic code numbers were used. Transcription of qualitative data was done immediately after interviews. Tape recordings were translated accurately by two different people to proofread the accuracy. Framework method of analysis was used to analyse the study qualitative data. The Framework Method was developed by Jane Ritchie and Liz Spencer in the late 1980s and it is used widely in health research²⁶.

In this study the process involved the following steps, transcription, familiarisation, development and application of a working analytical framework, where codes were analyzed and grouped into sets to apply in the transcript, each code was assigned a letter for easy identification, generating framework matrix, using spreadsheet a matrix was generated using the RE-AIM framework. Rows represent RE-AIM dimensions [Reach, Effectiveness, Adoption, Implementation, Maintenance] and columns included Theme [broad concept], Codes [specific concept], Definition [code explanation], and Quotes [Actual participant responses]. Lastly, interpreting the data, each category was interpreted to its meaning and findings were compiled²⁶.

Ethical Considerations

The study obtained ethical approval from the College of Medicine Research Ethics Committee [COMREC] with a study unique number P.02/25-1394. All study tools, design and methods were reviewed and approved by COMREC. Permission to conduct the study was obtained from MUBAS registrar, Dean of students and MUBAS clinic. Additional permission was obtained from CHer-YoD and the ministry of health, the implementers of the peer educator program. All

information about the study including study objectives was shared with participants before signing of informed consent. Informed consent was signed only upon understanding what was required of the participant. Participation was voluntary, and participants were allowed to withdraw at any time without facing any consequences.

Results

Introduction

To ensure clarity, methodological transparency and rigor, the study utilized integration by narrative using the contiguous approach in which the major findings have been presented separately based on method used, starting with quantitative results followed by qualitative results in the same section. Results have been integrated and mixed in the discussion and interpretation section to provide a more comprehensive evaluation of the peer educator program. This approach is consistent with the principles of complementary mixed methods design^{26,27}.

Quantitative results

Demographic characteristics

The findings of the study reviewed that, in 2023 a total number of 1875 clients accessed HIV and SRHR services, out of this number 642 [34.24%] were females and 1233 [65.76%] were males, according to quantitative data, service utilization was predominately by 20-24 age group with 1008 client accessing services in 2023 representing 53.76%. After the integration of peer educator program, a total number of 2579 clients accessed HIV and SRHR service, 1065 [41.30%] were females and 1514 [58.7%] were male, with age group 20-24 having a higher service uptake with a total number of 1492 representing 57.85%. These results show a percentage increase of female students accessing HIV and SRHR services from 34.24% in 2023 to 41.30% in 2024 after integration of the peer educator program. Table 2 provide the summary of demographic characteristics.

HIV service utilization before and after integration of the peer educator programme

In 2023, before the integration of the peer educator programme, a total of 1,875 clients were recorded as accessing HIV-related services at the MUBAS campus clinic. This increased to 2,579 clients in 2024, following integration of the peer educator programme, representing a 37.55% increase in the number of recorded clients accessing HIV-related services.

Using the MUBAS student population of 8,000 as the denominator for each year²³, the proportion of the student population represented by recorded HIV service users increased from 23.44% in 2023 to 32.24% in 2024. The absolute difference in proportions was 8.80 percentage points (95% CI: 7.42–10.18 percentage points). A two-proportion Z-test was used to compare the proportions between the two years. The analysis produced a Z-value of 12.418 (two-sided $p = 2.09 \times 10^{-35}$), indicating a statistically significant difference at the 5% significance level ($\alpha = 0.05$).

HIV self-test kits

The number of clients accessing HIV self-test kits increased from 295 in 2023 to 1,005 in 2024, representing a 240.68% increase in the number of recorded HIV self-test kit users. Using 8,000 students as the denominator for each year²³, the proportion represented by recorded HIV self-test kit

users increased from 3.69% in 2023 to 12.56% in 2024. This represented an absolute increase of 8.88 percentage points (95% CI: 8.04–9.71 percentage points). A two-proportion Z-test showed a statistically significant difference between the two years ($Z = 20.544$; two-sided $p = 8.68 \times 10^{-94}$; $\alpha = 0.05$).

In addition to the increase in the number of clients accessing HIV self-test kits, 997 HIV self-test kits were distributed in 2023 compared with 1,848 kits in 2024, representing an 85.36% increase in the number of kits distributed. Because kit distribution represents a quantity of commodities rather than a proportion of students, the number of kits distributed was reported as an absolute count and percentage change. The 20–24-year age group was the predominant age group accessing HIV self-test kits in both years. Females accounted for 87 (29.49%) of recorded HIV self-test kit users in 2023 compared with 470 (46.77%) in 2024.

Condoms

A total of 22,253 condoms were distributed in 2023 compared with 72,832 condoms in 2024, representing an absolute increase of 50,579 condoms and a 227.29% increase. The number of condoms distributed in 2024 was approximately 3.27 times the number distributed in 2023. The 20–24-year age group accounted for the largest proportion of condom distribution in both years, with 8,775 (39.4%) condoms distributed in 2023 and 28,843 (39.6%) in 2024. In 2024, males accounted for 78% of recorded condom recipients compared with 22% for females. Because multiple condoms may be distributed to an individual student, the number of condoms distributed was treated as a service commodity count rather than as a student-level proportion.

HIV testing

The number of clients receiving facility-based HIV testing decreased from 651 in 2023 to 638 in 2024, representing a 2.00% decrease. The proportion represented by recorded facility-based HIV testing clients decreased slightly from 8.14% in 2023 to 7.98% in 2024. The absolute difference was -0.16 percentage points (95% CI: -1.01 to 0.68 percentage points). The two-proportion Z-test showed no statistically significant difference between the years ($Z = -0.378$; two-sided $p = 0.706$; $\alpha = 0.05$). Facility-based HIV testing was predominantly accessed by the 20–24-year age group, which accounted for approximately 55% of recorded users across the two years. In 2023, females accounted for 35.64% of recorded users and males for 64.36%, compared with 37.46% females and 62.54% males in 2024.

Post-exposure prophylaxis

The number of clients receiving PEP decreased from 213 in 2023 to 201 in 2024, representing a 5.63% decrease. The proportion represented by recorded PEP users decreased from 2.66% in 2023 to 2.51% in 2024. The absolute difference was -0.15 percentage points (95% CI: -0.64 to 0.34 percentage points). The two-proportion Z-test indicated no statistically significant difference between the two years ($Z = -0.598$; two-sided $p = 0.550$; $\alpha = 0.05$). The 20–24-year age group recorded the highest PEP utilization in both years, accounting for 54.00% in 2023 and 56.22% in 2024. Males accounted for approximately 86% of recorded PEP utilization across the two years.

Pre-exposure prophylaxis

The number of clients receiving PrEP decreased from 44

in 2023 to 31 in 2024, representing a 29.55% decrease. The proportion represented by recorded PrEP users decreased from 0.55% in 2023 to 0.39% in 2024. The absolute difference was -0.16 percentage points (95% CI: -0.37 to 0.05 percentage points). The difference was not statistically significant ($Z = -1.505$; two-sided $p = 0.132$; $\alpha = 0.05$). Overall, PrEP utilization remained low in both years. The 20–24-year age group recorded the highest utilization, followed by the 25–29-year age group. In 2024, males accounted for 83.87% of recorded PrEP users.

STI treatment

The number of recorded STI cases that were treated decreased from 397 in 2023 to 286 in 2024, representing a 27.96% decrease. The proportion represented by recorded STI cases decreased from 4.96% in 2023 to 3.58% in 2024. The absolute difference was -1.39 percentage points (95% CI: -2.01 to -0.76 percentage points). The two-proportion Z-test showed a statistically significant difference between the two years ($Z = -4.341$; two-sided $p = 1.42 \times 10^{-5}$; $\alpha = 0.05$). The 20–24-year age group recorded the highest proportion of STI cases in both years, averaging 63.5%, followed by the 25–29-year and 15–19-year age groups. Females accounted for 65.73% of recorded STI cases in 2024.

Emergency contraception

The number of clients receiving emergency contraception increased from 36 in 2023 to 58 in 2024, representing a 61.11% increase. The proportion represented by recorded users of emergency contraception increased from 0.45% in 2023 to 0.73% in 2024. The absolute difference was 0.28 percentage points (95% CI: 0.04–0.51 percentage points). A two-proportion Z-test showed a statistically significant difference between the two years ($Z = 2.276$; two-sided $p = 0.0229$; $\alpha = 0.05$). All recorded users of emergency contraception were female.

Post-violence care

No cases requiring post-violence care were formally recorded or documented by the peer educators or the MUBAS campus clinic during either study period. Consequently, no quantitative comparison of post-violence care utilization between 2023 and 2024 was possible.

Service Uptake by Age Group

Figure 1, shows age group analysis, students aged 20–24 years constituted the majority of services users, their HIV and SRHR utilization making up 54% of the total in 2023 and 58% of total in 2024. Followed by the 25–29 age group and then 15–19 age group.

Qualitative results

Qualitative data was obtained using key informant interviews from 10 peer educators and two campus clinic staff. Peer educators comprised 6 male students and 4 female students, on other hand campus clinic staff consisted of one male clinician and one male data officer. Among peer educators 2 males and 2 females are allocated outside campus while the remaining 6 are allocated inside the campus. Themes are presented according to the RE-AIM framework, which was used as a guiding structure for assessment of the program.

Reach of peer educator program

Peer Educator Roles

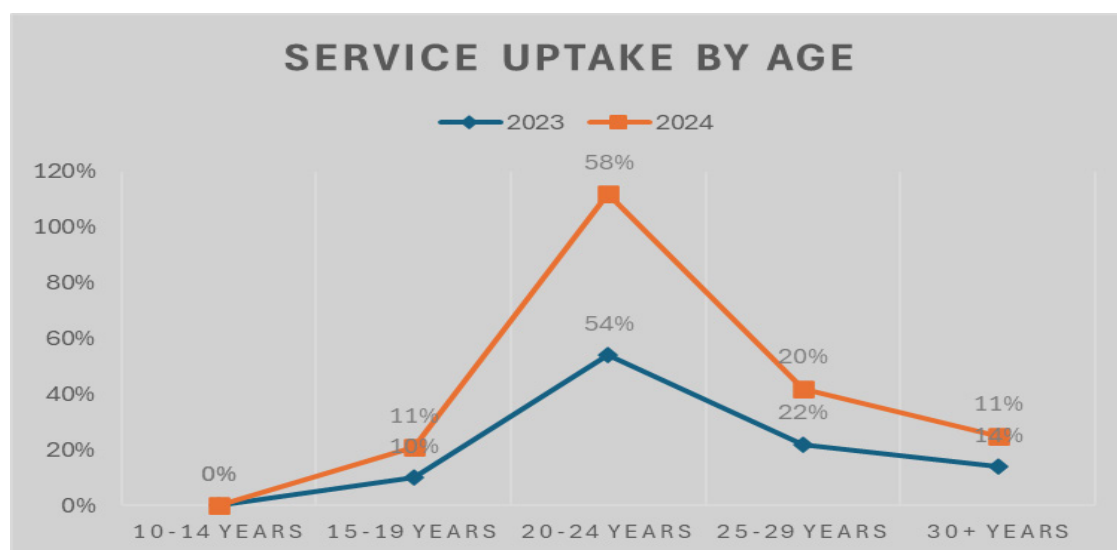
Peer educators at the Malawi University of Business and

Table 1: Summary of HIV services

ITEM	SERVICES	SOURCE	VARIABLES
Services peer educators provide	Condoms	Clinic database	☐ Number of clients who accessed each service.
	HIV self-test kits		☐ Age [How old in years' client is]
	Emergency contraceptives		☐ Gender [Female or Male]
	Lubricants		☐ Number of services distributed in case of condoms and emergency pills
Services peer educators provide referral	Pre-Exposure Prophylaxis [PrEP]	Clinic database	
	Post Exposure Prophylaxis [PEP]		
	Facility HIV testing		
	Sexually Transmitted Infections [STIs] treatment		
	Post violence care		

Table 2: Summary of demographic characteristics

Variable	Before Peer Educator Integration n[%]	After Peer Educator Integration n[%]
Age		
10-14Yrs	5 [0.27]	0 [0]
15-19Yrs	193 [10.29]	292 [11.32]
20-24Yrs	1008 [53.76]	1492 [57.85]
25-29Yrs	417 [22.24]	519 [20.12]
39+ Yrs	252 [13.44]	276 [10.70]
Gender		
Male	642 [34.24]	1065 [41.30]
Female	1233 [65.76]	1514 [58.70]

**Figure 1: Shows service uptake by age**

Applied Sciences (MUBAS) are trained to serve as a link between students and available SRHR and HIV-related services. Their role includes providing convenient access to condoms, HIV self-test kits, lubricants, and emergency contraceptives. In addition to service provision, peer educators are responsible for health education and advocacy,

including providing information on HIV and AIDS, sexually transmitted infections (STIs), sexual and reproductive health and rights (SRHR), and gender-based violence (GBV), as well as informing students about available reporting and support mechanisms.

One participant described their role as follows:

Table 3: Summary of implementation barriers

Programme Barrier	Description	Interview Quote
Supply and Stock-Outs	Emergency contraceptive pills were frequently out of stock, with some participants reporting prolonged periods of unavailability.	"When we go to the clinic, we always find condoms, lubricants and HIV self-test but not the emergency pills. Most of the time there's a scarcity of emergency pills. So, we heard from the clinic that there is a lack of emergency pills now, almost for seven months now." [P1]
Inadequate Number of Peer Educators	There were only 10 peer educators serving approximately 8,000 students, limiting the programme's capacity to provide adequate outreach and support.	"We are 10 peer educators serving 8,000 students, which limits outreach." [P3]
Negative Perceptions and Stigma	Some students held negative perceptions of peer educators and associated them with HIV infection or perceived sexual immorality, which could undermine their acceptance and effectiveness.	"They are assumed to be HIV-positive or sexually immoral. 'You can't cook beer without drinking it.'" [P2]
Referral Challenges	The referral process lacked standardized documentation and a formal tracking mechanism, with referrals often being conducted verbally.	"To say the truth, we don't have documentation for that. Referrals are mostly verbal with no tracking system in place." [P9]
Misuse or Misunderstanding of PEP	Some students misunderstood the appropriate use of PEP and, in some cases, shared medication intended for individual use with other students.	"One of the challenges is misunderstanding what is there among students on services we do offer as a clinic and how to use them. For example, we counsel one student about the use of PEP and share one bottle of PEP to be used by one student for a month, then he/she will distribute it among his friends. The second challenge is when we run out of stock, we have to run up and down to source the services." [P12—Clinic staff]

"My role as a peer educator is to teach people about HIV and AIDS, gender-based violence and where they can report the cases. I also distribute HIV self-test kits, lubricants, condoms and teach people about STIs." [P4]

Another participant similarly emphasised the educational and advocacy dimensions of the role:

"My role is to educate and advocate to my fellow students about sexual and reproductive health, provide self-test kits, condoms and contraceptives." [P3]

Peer educators also described themselves as a bridge between students and the university clinic. They supported students in accessing services, particularly when the clinic was closed, and directed or referred students to appropriate services that were not directly available through the peer educator programme. These included mental health, HIV-related services, and GBV support. As one participant explained:

"Actually, my role is firstly to distribute health services, to act like a medium between the clinic and students, and also to direct people where to go in cases of mental health, HIV, and also GBV." [P2]

These accounts suggest that the peer educator programme extends beyond the direct distribution of commodities to encompass health education, advocacy, service navigation, and referral. Peer educators therefore function as an accessible first point of contact for students seeking information and support related to SRHR and HIV.

Services Provided by Peer Educators

Participants reported providing a range of SRHR and HIV-related services to students and, to a lesser extent, staff. These included the distribution of condoms, HIV self-test kits, lubricants, and contraceptives, as well as counselling and health education. Peer educators also facilitated referrals and provided information on accessing services such as HIV testing, pre-exposure prophylaxis (PrEP), post-exposure prophylaxis (PEP), STI treatment, and post-violence care.

One participant summarised the range of services provided:

"We educate on HIV and AIDS, provide self-test kits, condoms, contraceptives and other counselling services including referring." [P8]

Another participant highlighted the role of peer educators in facilitating access to services beyond those they directly provide:

"We provide guidance and counselling, HIV self-test kits, lubricants, and we also direct them on how they can be able to access PrEP, PEP and STI treatment." [P9]

Thus, the programme provides both direct services, such as commodity distribution, counselling, and health education, and linkage services, through which students are referred or guided to appropriate facility-based care. This combination potentially enhances access to services by reducing informational and practical barriers between students and formal health services.

Reach of the Peer Educator Programme

Participants identified fellow students as the primary target population of the peer educator programme, although staff members also accessed services when they approached peer educators. This indicates that while the programme is principally student-focused, its reach extends beyond the intended student population to include members of staff who seek assistance.

As one participant noted:

"Mainly fellow students and staff members who have reached out." [P4]

Overall, the findings indicate that the reach of the peer educator programme is characterised not only by the number of individuals accessing services but also by the range of functions through which peer educators connect students and staff to SRHR and HIV-related information, commodities, and care. By combining peer-led education, direct service provision, referral, and service navigation, peer educators

occupy an important intermediary position between the university community and formal health services.

Models of Service Delivery

Participants described several models through which peer educators delivered sexual and reproductive health and rights (SRHR) and HIV-related services to students and staff. These included face-to-face delivery, non-human condom dispensers, door-to-door distribution in hotels, and the use of social events and social media platforms. The different approaches enabled peer educators to reach beneficiaries through both direct and discreet channels, depending on the nature of the service and the context in which it was accessed.

Face-to-face delivery was described as a primary approach for providing services directly to individual students or staff members. This model allowed peer educators to interact with beneficiaries, provide information, and support them in accessing or using services. As one participant explained, *"We use face to face, man to man. They come and take willingly"* [P2].

Participants also reported the use of non-human condom dispensers, which provided an alternative and more discreet means of accessing condoms. These dispensers were placed in toilets and other designated areas, allowing students to obtain condoms without having to interact directly with a peer educator. One participant explained: *"We use non-human dispensers; we have them in each washing room"* [P2]. The participant further described these as

"boxes that are placed in, for example, toilets where you put condoms, or OraQuick, especially condoms, where people just get from there" [P2].

Door-to-door distribution was another model, particularly in hotel settings. This approach involved peer educators moving from room to room to provide services directly to potential beneficiaries. As one participant stated,

"We do door-to-door distribution of the services" [P5].

Social events were also used as strategic platforms for service delivery. Peer educators reported taking advantage of gatherings such as general meetings, open-air events, social activities, and sports events to reach larger numbers of students. These events provided opportunities to distribute condoms, lubricants, emergency contraceptive pills, and HIV self-test kits, while also providing information on how to use the services. One participant described this approach:

"We take advantage of mass meetings, places where there are a lot of people, like open airs, socials, general assemblies. We set up our tables with services we distribute, including self-test kits, lubricants, condoms and emergency pills, so people come there to access some of the services. We explain to them how they can use test kits and what the results mean. We also advertise on social media and put room numbers so that if anyone wants to access the services, they can come and get assisted." [P4]

Social media platforms complemented these face-to-face and community-based approaches by providing a means of disseminating information and informing potential beneficiaries about available services. Participants indicated that social media was used to advertise services before directing students to social gatherings or peer educators for access. This approach also facilitated outreach to students outside the campus environment. As one participant explained:

"First we advertise what we are offering using social media, then we distribute our services through social gatherings like social weekends,

shows and open airs. To those who are outside campus, there are also peer educators there who help to reach out to them." [P6]

Overall, the findings indicate that peer educators employed a multi-channel model of service delivery, combining direct interpersonal approaches with more discreet and community-based mechanisms. Face-to-face and door-to-door approaches facilitated direct interaction and support, while condom dispensers provided greater privacy and convenience. Social events enabled peer educators to reach larger groups, whereas social media extended communication and outreach beyond physical spaces. The use of multiple delivery models therefore appeared to increase the opportunities for students and staff to access SRHR and HIV-related services through channels that suited different preferences and circumstances.

Effectiveness of peer educator program

Effectiveness was evaluated by exploring the program's ability in reducing students' risk behaviors to HIV, increasing service utilization and contributing to positive, meaningful change.

Improved knowledge

The peer educator program was reported to be effective in improving students' knowledge, related to HIV and sexual and reproductive health rights [SRHR]. Peer educators reported that, since the introduction of the program, students have become more knowledgeable on understanding of HIV transmission, improved knowledge on HIV self-testing, improved knowledge about family planning, PEP and PrEP.

One peer educator stated:

"People had information on the way you can transfer HIV they believed in wrong ways. But now coming to this program, because of the sessions we teach them, now they have the right information". [P2]

Students' knowledge and insight about family planning services has also improved. Peer educators through their teaching sessions during general meetings and social events have increased students' willingness to access family planning services and helped to resolve college myths. A female peer educator stated:

"This has brought awareness on family planning methods and many students know how to protect themselves when having sex". [P5]

The program has also been reported to improve students' knowledge and increase demand for services such as PEP and PrEP. With peer educators highlighting that:

"But now they happily received information, and even asked for PEP and PrEP that I want to receive the services" [P9].

Improved Access to Sexual and reproductive health services

1. Improved access to HIV testing

The peer educator program has increased student's willingness to access HIV testing and the number of students accessing HIV testing services. Before the integration of peer educators' program, many students were afraid to visit the campus clinics due to fear of stigma, lack of privacy, and limited knowledge about available services. However, since the integration of peer educators at MUBAS, more students are accessing HIV self-testing services.

"At first these services were not found with students, which means if the students needed the services they had to go to the clinic, but since the introduction of peer educators, students are not ashamed to come to get the services because they know we are their peers, they are shy when they go to the clinic, they're afraid to be judged that they get the services"

frequently unlike from their fellow students. Now they are open" [P10]

Another peer educator stated

"There are some changes, like in terms of testing and knowing their HIV status. At first there have been a few among the students to go to the clinic for HIV test using the blood, due to the coming of HIV self-test kits, they are able to come to us, the peer educators and collect the HIV self-test kits that they can use to test for them by themselves" [P1]

2. Reduced stigma and easy access to services

The peer educator program has also been reported to reduce stigma towards HIV services. Due to the introduction of the program, students can easily access services, counselling and guidance that is accurate from their fellow student about HIV and SRHR at any time and within their hostels, this has eliminated stigma and fear of being judged and labelled bad by campus clinic staff. A female peer educator stated:

"At first before introduction of the program, most of the students were too shy to get services. But these days after the program most of the students are willing to get access to the services." [P3]

Another peer educator stated:

"I have met people in my life that were down, like they did not know what to do, but because of this program gave me some knowledge. I was able to help those people, and I felt very happy that I was there to help people who are in need" [P2].

3. Improved attitude towards SRHR services

Students' attitude towards HIV and family planning services has improved, more students are open to receive services and information without being judged or judging others. All peer educators agreed on this, with one stating:

"Easy acceptance of the services unlike previously people would shy away from accessing the services. Now students are able, eager and encourage each other to take the services showing that they have improved in knowledge and information." [P8]

Peer educators' supportive role to clinic

During the interviews with clinic staff, they admitted important support the peer educators provide in distribution of services to their students and reducing the clinic workload. Peer educators help the clinic to reach big numbers in services distribution. In an interview clinic staff stated:

"To be part of the clinic has eased the work of the clinic in terms of the distribution of the work. secondly, it has helped us to reach big number of the students in terms of distribution of condoms and HIV self-test kits, family planning methods and other services" [P11]

Improved Health-Seeking Behaviors

Participants stated that the peer educator program has improved student's health seeking behaviour regarding HIV and SRHR services and information. Before the integration of the program students were afraid of going to the clinic to access the services. However, the presence of trained peer educators has made health information and services more accessible and acceptable within the student community. The program has contributed to;

1. Reduced risk to HIV

More students were at risk of HIV and other sexually transmitted infections due to lack of knowledge of prevention measures available within the campus. But because of the program students can access information and services to protect themselves:

"Students were not aware of the HIV status and they could get involved in sexual activities without protecting themselves, but these days we have

seen that more students are aware of their own status and they are protecting themselves from such activities" [P7]

2. Students' willingness and openness to access services

The level of trust between peer educators and students has increased student's openness to access services through this program. Students feel free and open to discuss sexual health matters with peer educators.

"Students are always free and open to come to us to collect the services, other than going to the clinic for private sake, because they have some fears about going to the clinic to collect the services. So, due to coming of the peer educators distributing these services, it has been an easy way for students to correct the services and use them at appropriate times" [P10]

Students have developed positive attitude towards HIV and SRHR services unlike at the start of the program:

"At first, they used to act in a way that they can't carry them, they can't touch them. But now, I think the drive here towards the same services is just nice" [P2]

Implementation

There are several factors to the implementation of peer educators' program, these factors have been grouped as program facilitators which are factors that supported the success of the program and program barriers which are factors that hindered the success of the program.

Programme Facilitators

Participants identified several factors that facilitated the implementation and delivery of the peer educator programme. These included availability of services, flexible operating hours, a functional referral system, continuous training, reliable supply of commodities, and collaboration and partnerships with key stakeholders. Collectively, these factors enhanced the accessibility and delivery of sexual and reproductive health services to students and supported peer educators in reaching students who may otherwise have been reluctant to access services directly from health facilities.

Flexible operating hours facilitated access to peer educators at times convenient to students. Participants reported that peer educators were available throughout the day and could be contacted by telephone, enabling students to seek information, counselling, and services when needed. Where a particular peer educator was unavailable because of academic commitments, students could be directed to another available peer educator.

"We work each and every day, all the time. Whenever the client comes or texts us, we just give him or her the time to meet. Sometimes we might be busy with the classes or the exams, yeah. So, we just tell them, 'You can go to that particular peer educator; he or she is free.'" [P1]

Another participant emphasized the accessibility of the peer educators:

"We operate 24 hours a day." [P5]

The availability of essential services and commodities was also identified as an important facilitator. Participants reported that condoms and HIV self-test kits were consistently available through the campus clinic, enabling peer educators to provide these services without frequent interruptions.

"Condoms and HIV self-test kits are always available, and when students need these services, we provide because we have never run out of stock for condoms and HIV self-test kits." [P6]

This availability was supported by a reliable supply chain
<https://dx.doi.org/10.4314/mmj.v38i3.1>

linking peer educators with the campus clinic. Peer educators were integrated into the campus clinic system and could obtain commodities from the clinic when their supplies were depleted. This arrangement facilitated continuity in service delivery and reduced disruptions caused by stock shortages.

"For us, the peer educators, we get the services from the campus clinic. They told us anytime we run out of stock, we should be getting them from the clinic unless they also don't have [them]." [P10]

Collaboration and partnerships with the college administration and student leadership structures further facilitated programme implementation. The involvement of the Dean of Students and Students' Union supported communication and awareness creation, enabling information about the peer educator programme and available services to reach a wider student population.

"First of all, the involvement of our Dean of Students and the Students Union body, because when we came here as the peer educators after our training, our Dean of Students, she sent the email to all students here on campus that we are introducing new peer educators to be distributing the services, HIV and AIDS-related services." [P1]

Participants also highlighted the importance of continuous training and programme support. Refresher trainings, meetings, workshops, and programme evaluations conducted by CHeR-YoD and EGPAF provided opportunities for peer educators to strengthen their knowledge and skills, identify implementation gaps, and receive ongoing support.

"Peer educators' frequent meetings, workshops and the evaluations help to identify gaps. And the administration has also helped a lot because they like us getting involved in activities." [P9]

Finally, the presence of a referral system facilitated access to services that were not directly available through peer educators. Peer educators referred students requiring services such as post-exposure prophylaxis (PEP) and pre-exposure prophylaxis (PrEP) to appropriate health facilities, including the campus clinic and other designated health facilities. This referral mechanism enabled the peer educator programme to function as a link between students and the broader healthcare system.

"For example, some students, they come to us, 'We want PEP or PrEP.' We always tell them to go to the clinic, Queen Elizabeth Hospital or Gateway Clinic. They will give you the counselling and the services." [P1]

Overall, the findings suggest that service availability, accessibility, commodity supply, institutional support, continuous capacity building, and functional referral mechanisms were important facilitators of peer educator programme implementation. These findings demonstrate that sustaining peer-led health services requires not only motivated peer educators but also supportive institutional structures and reliable linkages with formal health services.

Program barriers

The programme also faced several barriers that affected its implementation and delivery. These included stock-outs of emergency contraceptives, an inadequate number of peer educators relative to the student population, lack of documentation and tracking mechanisms during the referral process, negative perceptions and stigma associated with peer educators, and misuse or misunderstanding of post-exposure prophylaxis (PEP) among students. These barriers highlight challenges related to commodity availability, human resources, referral systems, social perceptions, and

appropriate use of services. Table 3 summarizes the key implementation barriers, their descriptions, and supporting interview quotations.

Adoption of peer educator program

In this study adoption was assessed by evaluating how well campus clinics and college administrations have supported and integrated peer educators into their operations.

College administration support

The peer educator program has been fully supported by MUBAS administration and Campus clinic staff. The clinic has integrated the program in their daily operations and reporting. Participants reported that the university's Dean of students has supported the peer educators by introducing them to the students' community, and the administration has taken an active role in selection of peer educators. The administration has also allowed the peer educators to attend additional training under the program.

"First of all, the involvement of our Dean of Students and the Students Union body. Because when we came here as the peer educators after our training, our dean of students, she sent the email to all students here at Campus that we have are introducing a new peer educator to be distributing the services, HIV and AIDS related services". [P1]

Student support

Peer educators have received continuous support from student representative council and students' community. The students' council invite peer educators to general meetings and social events to share information with other students; peer educators have also been involved in orientation of first year students.

"I was distributing condoms at social activities, one of my friends was drunk so I gave him condoms. Later on the following morning he thanked me that he could have contracted sexually transmitted infections or impregnated a girl but he was protected with the condom" [P5]

Maintenance of the Peer Educator Programme

Several measures are in place to ensure the continuity and sustainability of the peer educator programme, including the annual replacement of peer educators, training of newly selected peer educators, and provision of monthly incentives. During the interviews, both peer educators and campus clinic staff reported that peer educators who graduate are replaced annually. New peer educators are identified, selected, and subsequently trained to take over the responsibilities of those who have completed their studies.

"There is always a replacement that occurs, like for us to come in. There were peer educators that graduated last year. So, there is always a replacement. So, after the replacement, the new guys, they go to the training" [P1].

The selection process involves identifying students who demonstrate an interest in and commitment to supporting the programme. Existing peer educators, in collaboration with the Dean of Students, play a role in identifying and recommending potential replacements. The newly selected peer educators are then trained by EGPAF, CHeR-YoD, and the Ministry of Health/District Health Office to equip them with the knowledge and skills required to implement the programme effectively.

"The thing is as we are working, we also discover some of the students who are also very active in helping to implement this program and also we already have oriented peer educators and we choose them and they are

trained by EGPAF, CHeR-YoD and DHO.” [P3]

In addition to replacement and training, monthly incentives are provided to peer educators as a form of motivation and recognition for the support they provide to their fellow students. These incentives were perceived as an important mechanism for encouraging continued participation and commitment to the programme.

“Peer educators receive monthly incentives.” [P8]

Discussion

Introduction

The study utilized integration by narrative using the contiguous approach in which the discussion involves integrating quantitative and qualitative results. The integrated results discussion has been presented using the RE-AIM framework.

The main findings of this study show that integration of peer educator program has increased uptake of HIV services including HIV self-testing, condoms and emergency contraceptives while reducing STIs cases, PEP and PrEP. The program has been reported to improve understanding of HIV transmission, knowledge of HIV self-testing, knowledge of PEP and PrEP, improved knowledge of family planning and improved students' attitude towards SRHR services. Several factors have been reported to contribute to program success including, readily availability of services, peer educator's good operation hours, presence of referral system, continuous refresher training, good supply chain, collaboration and partnership while emergency contraceptive stock-out, inadequate number of Peer Educators, lack of documentation during referral process, negative perceptions over peer educators and students misuse of PEP has been reported to hinder the program implementation.

Reach of peer educator program

The peer educator program at MUBAS demonstrated considerable reach among students both on and off campus. Following integration of the program, the number of students accessing HIV-related services increased by 37.55% compared with the preceding year ($p < 0.00001$), with HIV self-testing (HIVST) showing a particularly marked increase of 241%. This finding is consistent with evidence from an evaluation of peer educator programs in higher education institutions in Zimbabwe, where peer-delivered HIVST kits were associated with increased uptake of HIV testing on campus. In that study, 66% of participants expressed interest in using HIVST kits, while 44% subsequently collected the kits¹⁷. Together, these findings suggest that peer-led approaches, particularly those incorporating HIVST, may facilitate access to HIV testing among university students by providing services through channels that are familiar and accessible to young people.

The findings also indicate increased access to HIV services among female students following integration of the peer educator program compared with the year preceding its implementation. This is consistent with findings from a study conducted among female students in Uganda, which reported a preference for peer-supported distribution of HIVST and increased willingness among female students to access HIV testing services through peer-supported approaches²⁷. The increased engagement of female students observed in the present study may therefore reflect the potential of peer-led service delivery to create more acceptable and accessible

avenues for HIV service utilization among young women.

The observed increase in service utilization may also be related to the diverse models of service delivery employed by the MUBAS peer educators. These include the use of non-human-operated condom dispensers, outreach activities conducted during social events, and social media platforms. Such approaches extend service delivery beyond conventional facility-based settings and may reduce some of the barriers associated with accessing HIV services among university students. Evidence from a 2024 review of social media use for HIV prevention and control similarly found that social media-based interventions can increase HIV testing and condom use among young people²⁸. In Ghana, a study conducted in the Tamale Metropolis reported that 45.4% of adolescents used social media to access adolescent sexual and reproductive health information and services, further highlighting the potential of digital platforms as an avenue for reaching young people with health-related information and services²⁹.

The role of outreach activities is also supported by evidence from Malawi. A study examining approaches to increasing adolescents' access to sexual and reproductive health information and services identified outreach activities, including those conducted during social events, as an important component of service delivery³⁰. The use of social events as outreach platforms may be particularly relevant in university settings, where such events provide opportunities to engage large numbers of students in settings that are familiar and less formal than conventional health facilities.

Overall, these findings highlight the potential contribution of peer educator programs and youth-friendly service delivery approaches including social media, outreach activities, and non-human-operated condom dispensers in expanding access to HIV services among university students. By bringing services closer to students and using communication and delivery channels that align with their social environments, peer educator programs may complement conventional facility-based HIV services and facilitate greater service uptake. However, the observed increase should be interpreted in the context of changes in the size of the MUBAS student population and other factors that may have influenced service utilization over the study period

Effectiveness

The findings suggest that the peer educator program contributed to improved knowledge and attitudes related to HIV prevention and sexual and reproductive health among MUBAS students. Participants reported improved understanding of HIV transmission, HIV self-testing (HIVST), post-exposure prophylaxis (PEP), pre-exposure prophylaxis (PrEP), and family planning, as well as more positive attitudes towards sexual and reproductive health and rights (SRHR) services. These findings are consistent with a randomized controlled trial conducted at a Malaysian public university, which found that peer-led behavioural interventions for HIV prevention significantly improved HIV-related knowledge among university students and reduced substance-related risk behaviours¹⁶. The consistency of these findings across different university settings suggests that peer-led approaches may provide an effective mechanism for communicating HIV and SRHR information in ways that are accessible and relevant to students.

The study also found a significant increase in HIVST uptake and condom utilization, alongside a reduction in reported STI cases in 2024 compared with 2023. The observed reduction in STI cases may indicate a potential contribution of the program to HIV and STI prevention; however, this finding should be interpreted cautiously because changes in reported STI cases may also reflect other factors, including changes in health-seeking behaviour, testing practices, and reporting. Within these limitations, the findings are consistent with a global systematic review and meta-analysis of 59 studies examining peer education for HIV prevention among high-risk populations. The review found that peer education was associated with increased HIV testing and condom use and reductions in STI outcomes and HIV infection, with effects on behaviour change remaining evident over a period of more than 24 months¹⁸.

Peer-led distribution of services may also help address some of the social barriers associated with accessing HIV and SRHR services. Previous research has reported that peer-to-peer service delivery can reduce concerns related to stigma and encourage health-seeking behaviour, while students may perceive services delivered by peers as more acceptable than accessing services directly through university clinics¹⁷. The combination of improved knowledge, increased uptake of preventive services, and greater engagement with peer-led platforms suggests that the program may have contributed not only to increased service utilization but also to a more informed and supportive environment for HIV and SRHR service access among students.

Implementation

Implementation of the peer educator program was characterized by both enabling factors and operational challenges. Key facilitators identified in the study included the availability of peer educators beyond conventional clinic operating hours, a reliable supply chain for most commodities, an established referral system, and continuous refresher training. These factors are important for maintaining the accessibility, quality, and continuity of peer-led services. Similar findings have been reported in a review of the sustainability of adolescent sexual and reproductive health programs utilizing peer educators in sub-Saharan Africa, which identified adaptability, adequate resources, economic opportunities for peer educators, refresher training, and referral systems as important facilitators of successful program implementation³¹.

Despite these facilitators, several operational barriers constrained implementation. Frequent stock-outs of emergency contraceptives were reported, with peer educators indicating that the commodity was unavailable for more than three months. According to the clinic, this shortage reflected a broader national supply constraint rather than a problem specific to the MUBAS clinic. Such interruptions can limit the ability of peer educators to provide comprehensive SRHR services and may undermine confidence in the availability of services when students seek them.

The number of peer educators was another implementation challenge. The program had 10 peer educators serving approximately 8,000 students, including those living both on and off campus. This relatively small peer educator workforce may constrain the program's capacity to provide consistent coverage across the student population, particularly when activities extend beyond the campus environment. Strengthening the peer educator workforce could therefore

be important for maintaining program reach as demand for services increases.

A further challenge was the absence of systematic documentation of referrals. Although peer educators had an established referral mechanism for linking students to appropriate services, referrals were not consistently documented or tracked. This limited the ability of the program to determine whether students completed referrals and reduced opportunities for feedback between peer educators and health facilities. Strengthening referral documentation and feedback mechanisms could improve continuity of care and enable more effective monitoring of service linkages.

These implementation challenges are consistent with findings from other peer-led programs in low-resource settings, where logistical constraints, weak referral and linkage systems, and limited integration with existing health systems can affect program fidelity and service delivery³². Addressing commodity availability, strengthening the peer educator workforce, and formalizing referral documentation may therefore be important for improving the sustainability and effectiveness of the program at MUBAS.

Adoption

The peer educator program was generally well integrated within the institutional structures supporting student health and wellbeing. University leadership, including the Dean of Students' office, campus clinic staff, and the Ministry of Health through the Blantyre District Health Office, played important roles in facilitating the rollout and integration of peer-led SRHR activities. Collaboration with the students' council also supported implementation, including by facilitating access to spaces for health awareness sessions and student orientation activities.

Institutional support is important for embedding peer-led interventions within existing university systems rather than operating them as stand-alone activities. This finding is consistent with evidence from a review of adolescent sexual and reproductive health programs utilizing peer educators in sub-Saharan Africa, which identified institutional support and effective supervision as important components of successful and sustainable peer educator programs³¹.

The involvement of both university and health-sector stakeholders may also have strengthened the program's institutional legitimacy and facilitated linkages between peer-led activities and formal health services. Similarly, UNAIDS emphasizes the importance of engagement by institutions, governments, communities, and other stakeholders in strengthening the sustainability of the HIV response³³. The positive institutional relationships observed in this study therefore provide an important foundation for sustaining peer-led SRHR activities at MUBAS. Continued institutional commitment, clear roles and responsibilities, supportive supervision, and integration of peer educator activities into existing student health structures will be important to maintain the program beyond the initial implementation period.

Maintenance

The study findings indicate that mechanisms are in place to support continuity of the peer educator program, particularly through the replacement and training of peer educators over time. As student peer educators graduate, they are replaced by other students who receive training from CHeR-YoD,

EGPAF, and the Ministry of Health. This process provides a mechanism for transferring knowledge and skills to successive cohorts of peer educators and may help maintain the availability of peer-led HIV and SRHR services despite changes in the student population.

However, the longer-term maintenance of the program may be influenced by its reliance on donor funding. Peer educators receive monthly incentives, which serve as an important motivation for their continued participation. While these incentives may support retention and engagement, their continuation is dependent on the availability of external funding and sustained donor commitment. Consequently, continued implementation of the program may be vulnerable to changes in donor priorities or reductions in financial support.

Although university administration has supported the implementation of the peer educator program, the findings suggest that greater institutional ownership and commitment may be required to ensure its continuity in the event that external partner funding declines or ends. Embedding peer educator activities within existing university structures, allocating institutional resources, and incorporating the program into routine student health and welfare activities could strengthen its long-term sustainability. Similar concerns have been reported in other youth-led health programs, where limited institutional ownership has been associated with challenges in retaining peer educators and sustaining program activities over time^{18,32}.

The importance of sustainable financing is further supported by evidence examining the effects of the international HIV funding crisis on HIV infections and mortality in low- and middle-income countries. This evidence emphasizes the need for sustainable financing mechanisms and greater domestic resource mobilization to reduce dependence on external donor funding and maintain continued access to essential HIV services³⁴. For the MUBAS peer educator program, strengthening institutional ownership alongside continued engagement with external partners could therefore provide a more sustainable financing and implementation model. Such an approach would help preserve the program's peer-led service delivery capacity while reducing its vulnerability to fluctuations in donor funding.

Conclusion and Recommendation

The study demonstrated that the peer educator program is effective in increasing uptake of HIV services among university students. Using the RE-AIM framework to evaluate the program, the study findings showed significant improvements in increasing uptake of HIVST, reducing STI cases, increasing condom utilization, improving students' knowledge, and attitude towards HIV and family planning services. Peer to peer services distribution has also contributed to reduced stigma and promoted peer trust in service utilization among young people. The study also indicate gender differences on HIV services utilization pattern with more male students utilizing HIV services compared to female students. Students aged 20–24 years constituted the majority of services users, both before and after the integration of peer educator program.

Despite emergency contraceptive stock outs and limited documentation during referral processes, the program has shown to be effective. In addition, to compliment peer educators' commitment, and partners' support, stronger

institution support is required for sustainability and scalability of the program. These study findings highlight the importance of peer educator program in enhancing students access to HIV information and services. This study contributes to the limited body of knowledge regarding implementation of peer educator programs in the Malawian setting. This study provides empirical evidence that peer-to-peer service delivery is effective in increasing uptake of HIV services and offers important guidance for policymakers when designing programs that target young people.

In conclusion, the integration of peer educator programs in services distribution, was found to be an effective model to improve access to HIV services among young people in higher education institutions. Considering the increased HIV infections among young people in Malawi, and 95:95:95 global HIV targets, there is a need for scaling the model, addressing structural and supply chain barriers, and expanding the program for student populations, particularly those off campus. The study also findings provide empirical evidence to inform youth programme designers on the importance of prioritising meaningful youth involvement and engagement to enhance youth participation and service utilisation.

Study limitations

The study was conducted at one university, hence difficult to completely generalise the findings, more research is required to add to the body of knowledge.

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Ethical approval and consent to participate

The study obtained ethical approval from the College of Medicine Research Ethics Committee [COMREC] with a study unique number P.02/25-1394.

Conflicts of Interest

The authors declare no conflict of interest

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