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Health system challenges and adolescent healthcare: Insights from Kamuli General Hospital in East-Central Uganda. A qualitative study

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Abstract

Background

Despite calls for concerted effort towards adolescent health, data on the health system challenges among adolescents living with HIV/AIDS (ALWHA) accessing care at Kamuli General Hospital (KGH) is scanty.

Objective

To assess the system challenges influencing access to care among ALWHA at Kamuli General Hospital Antiretroviral Treatment (ART) Clinic.

Methods

In a cross-sectional qualitative design, adolescents were stratified by age (< 18 years or ≥ 18 years), gender and in- or out of school. Thereafter, 6–10 participants with-in each stratum were enrolled into 10 Focus Group Discussions. One member from the Hospital Management Board, the District HIV/AIDS Focal Person and six key personnel at the ART Clinic were purposively enrolled. A checklist was used to capture data on adolescents' privacy and confidentiality while accessing care as well as the Information, Education and Communication messages displayed in KGH targeting adolescents. A total of 74 ALWHA were enrolled into the study.

Results

Service delivery for ALWHA was fragmented, with health education as the main service, minimal sexual and reproductive health care, no preconception services, and low family planning uptake (~ 5%) due to referrals. Mental health care was limited to screening and referral. Key challenges included disrespectful care, confidentiality breaches, and poor service integration. Essential services were external, psychosocial support relied on undertrained peers, and systemic gaps included poor planning, resource misallocation, and limited digital access.

Conclusion and recommendation

: ALWHA services remain fragmented and inadequate, with limited comprehensive care, low family planning uptake, weak integration, and systemic inefficiencies undermining quality, confidentiality, and health outcomes. Strengthening integrated adolescent-friendly services, improving provider training, expanding SRH and mental health care, and ensuring confidentiality are recommended

BACKGROUND

In 2025, the Elizabeth Glaser Pediatric AIDS Foundation (EGPAF) reported that about 1.6 million adolescents were living with HIV globally (EGPAF, 2026). Therefore, adolescents accounted for approximately 5% of all people living with HIV and nearly 11% of new adult HIV infections (UNICEF, 2022). Some 89% of the adolescents living with HIV/AIDs (ALWHA) live in Sub-Saharan Africa (SSA) (EGPAF, 2026) followed by Asia and Latin America (UNICEF, 2023). The HIV/AIDs related mortality among adolescents in African Low and Middle Income Countries (LMICs) is estimated to be 17 deaths per 100,000 adolescents (WHO, 2017), thus ranking HIV/AIDS the leading cause of death among this age group in SSA (Tonen-Wolyec et al., 2020). If strong measures are not implemented, new annual HIV infections among adolescents could reach nearly 183,000 by 2030 (UNICEF, 2022).

In resource limited nations like Uganda, partners including the President's Emergency Plan for AIDS Relief (PEPFAR) have supported the fight against HIV/AIDS from crisis levels in the early 2000s to the current control level (Dirlikov et al., 2023). Despite the new innovations in the Uganda's health system including peer-led HIV care models and youth-friendly environments, disparities persist among HIV clients (Gant et al., 2022), which is evidenced by a higher HIV/AIDs-related mortality among ALWHA compared to other age groups (Silva et al., 2022).

In Uganda, Kamuli remains one of the districts reporting poor indicators in the fight against HIV/AIDs (Sabrina et al., 2023). Data on the health system challenges among ALWHA seeking care at the Kamuli General Hospital (KGH) Antiretroviral Therapy (ART) clinic is not available, yet these challenges impact *the provision of HIV/AIDs care (Adhiambo, Ngayo, & Kwena, 2022). Health system's challenges are pertinent in settings without adequate resources to cater for health care costs in key populations such as adolescents (Roncarolo, Boivin, Denis, Hébert, & Lehoux, 2017). Such weak health systems contribute to escalating HIV infection now estimated at* 5.1 % in Uganda*(UNIPH, 2025).As a result, the highest mortality rates among adolescents in the SSA region are related to HIV/AIDs (Eba & Lim, 2017), with* more than 300 ALWHA dying per day (Lake & Sidibé, 2015). This *has been linked to health system challenges which negatively affect the uptake of healthcare among ALWHA (Abiiro, Annor, & Alatinga, 2022). Subsequently, this has worsened the HIV/AIDS burden in this vulnerable age group due to their engagements in high risk behavior like unsafe sexual intercourse (Rudgard et al., 2023). Therefore, failing to support this group will undermine progress towards achieving an AIDs-free generation (Kasedde, Luo, McClure, & Chandan, 2013; Ramphisa, Rasweswe, Mooa, & Seretlo, 2023).*

This study assessed the health system challenges that ALWHA faced while accessing care at Kamuli General Hospital ART Clinic in Eastern Uganda.

METHODS

Design, setting and population

This was a cross-sectional qualitative study that was conducted at KGH adolescents' HIV/AIDS clinic that is located approximately 118 Km East of the Capital City, Kampala. The clinic was selected because it serves a wider catchment area of four districts of Kamuli, Buyende, Luuka and Kaliro with an estimated combined population of ALWHA of 1069 (MOH, 2026). Kamuli District is multiethnic, but predominantly inhabited by the Basoga ethnic group. The residents' economic activities include peasantry, fishing on River Nile, Lake Kyoga and from the swamps. People in Kamuli still grapple with poor health indicators such as teenage pregnancy, limited access to safe water, poor sanitation and hygiene, and high HIV prevalence (Nabwiire et al., 2023; Nicolette et al., 2022). The ART clinic was operationalized in 2004. Currently, the clinic is mainly supported by Makerere University Joint AIDs Program (MJAP), and other Non-governmental Organizations (NGOs) including the Young Adolescents Peer Supports (YAPS) under UNICEF in conjunction with KDLG and the USAID Improving Care and Resilience for Children and Youth Activity (USAID-ICARE). YAPS are young people living with HIV who are empowered and mentored to provide psychosocial support to fellow peers. By December 2023, KGH's ART clinic had 136 ALWHA actively enrolled on care (MOH, 2023a).

Sample size determination and data collection

By the aid of a computer, the ALWHA were stratified into 10 categories namely; 1) Boys <18yrs, in-school, 2) Boys <18yrs, out-of-school, 3) Boys ≥18yrs, in-school, 4) Boys ≥18yrs, out-of-school, 5) Girls <18yrs, in-school, 6) Girls <18yrs, out-of-school, 7) Girls ≥18yrs, in-school, 8) Girls ≥18yrs, out-of-school, 9) Mixed Boys and Girls <18yrs in-school and out of school and 10) Mixed Boys and Girls ≥18yrs in-school and out of school. Then, through a simple random sampling procedure, 6 to10 ALWHA files in each category were selected. The clients whose file numbers were generated were invited for FGDs through their routine procedure that the clinic used to remind them of their appointment dates. The FGDs were conducted from a private room with-in KGH. The Key informants (KIs) enrolled included the In-charge of the ART Clinic, a midwife, a Clinical Officer, a Linkage facilitator, the Kamuli District HIV focal person, the Medical Superintendent of KGH, an Expert client and a member of KGH Management Board. They were purposively selected and scheduled for interviews due to their direct involvement in

providing services to ALWHA. Data was collected between March and April 2024, with both KI Interviews (KIIs) and Focus Group Discussions (FGDs) lasting between 20 to 42 minutes. Audio recordings and field notes were captured simultaneously during the interviews.

Data analysis

The recordings of the KIIs and FGDs were transcribed verbatim and reviewed in comparison to field notes following standard qualitative methods (Sadural, Riley, Zha, Pacquiao, & Faust, 2022) using a thematic framework approach (Braun & Clarke, 2023). A code list was generated and the segments from the data were copied and assigned to the pre-generated codes (Miles, Huberman, & Saldaña, 2014). Texts were coded and clustered along emerging themes that were later organized according participant's understanding of the factors affecting the provision of integrated services to ALWHA (supports and barriers). The data was presented in narrative form (Poerwandari, 2021).

Ethical considerations

The proposal was approved by Mbarara University of Science and Technology, the Faculty of Medicine Research Committee and the Institutional Research Ethics Committee (MUST-REC) (Ref: MUST-2023-1229). Permission to collect data was obtained from the KGH Medical Superintendent as well as the In-charge of the ART Clinic to access the ALWHA files. Informed consent (for ALWHA ≥18 years and KIs) and assent (for minors) were obtained from the participants at the time of enrollment into the study. The married minors were considered emancipated and were accordingly consented. Participants who consented to allow the research team to access their ART clinic files received transport reimbursement in accordance with the Institutional Research Ethics Committee guidelines.

Results

Table 1
Socio-demographic characteristics of ALHWA

SNO	Characteristics		Number	Percentage
1.	Age in years	> 18	41	55
		≤ 18	33	45
		Total	**74**	
4.	Sex	Females	47	64
		Males	27	36
		Total	**74**	
7.	Mode of Transmission	Vertical	70	95
		Horizontal	04	05
		Total	**74**	
10.	Education Level	Tertiary	09	12
		Secondary	38	51
		Primary	27	37
		No formal education	00	
		Total	**74**	
15.	Marital status	Married	06	19
		Not Married	68	81
		Total	**74**	

A total of 74 ALWHA were enrolled into the study (N = 74) and majority of them were females (64%). 55% of the ALWHA were over 18 years old. Most of the ALWHA (95%) were vertically infected with HIV and 81% of them were not married. All ALWHA had formal education.

Overview of service-related challenges faced by ALWHA at the KGH ART clinic

YAPS and linkage facilitators served as the primary health educators at the KGH ART clinic. Mental health assessments for ALWHA were conducted by a psychiatric nurse, with those requiring further care referred to the hospital's mental health clinic outside the ART unit. Sexual and reproductive health and rights (SRHR) services for adolescents were limited to health education, with no preconception care provided for those intending to conceive. Family planning services and modern contraceptive methods were available at the general FP clinic outside the ART unit, but uptake was low (about 5%). Similarly, antenatal care for pregnant ALWHA was accessed through the general ANC clinic. Community outreaches were conducted by linkage facilitators, expert clients, and YAPs affiliated with the ART clinic, though none specifically targeted schools. Assisted partner notification among sexually active ALWHA was also limited. **The challenges faced by ALWHA seeking care at KGH ART clinic**

Three themes emerged from this study including: (1) disrespectful services, (2) Limited confidentiality in service provision and (3) lack of integration of services.

Disrespectful services

ALWHA reported that services at KGH ART clinic were offered in an un-respectful manner.

"…the adult patients do not respect the day (one day every month) which was reserved for us……..even the health-workers do not send them away from the clinic to create room for us (ALWHA)…..this wastes our time at the clinic…" **All FGDs**.

In addition, the ART clinic was situated in between other hospital departments including the Dental Clinic, the laboratory and the central pharmacy.

"…..Our clinic is not very good for us…we are seen by people starting from Out-patient department, the people with teeth problems and those going to check their blood……" **FGD in school boys < 18yrs, FGD Mixed in-school and out of school Boys and Girls < 18 years, and FGD in school Girls, < 18 years.**

The KGH ART clinic was not included the hospital planning processes.

"…it is very common for KGH ART clinic to attract donor funding…..for example, the YAPS were recruited, trained and are being paid by the IPs…Therefore, during our (hospital) planning meetings, ART clinic programs are put under unfunded priorities due to a limited hospital budget…" **KI_1**.

Furthermore aid which was offered to ALWHA was mismanaged by allocating it to activities out of the ALWHA.

"..Some time back, National Forum of People Living with HIV Networks in Uganda *(NAFOPHANU) bought for us a container which was allocated to adolescents only. However, I do not see ALWHA using it, and it is sometimes locked up with files of the general patients from the ART Clinic....."* **KI_2 and KI_3**

There were no specific IPs that designed programs to support ALWHA at KGH ART clinic

"…Previous IPs had a lot of money that was invested in this clinic. However, the current IPs seem to have little impact on the services offered to our ALWHA…" **KI_7**.

Except the YAPS, most of the health workers at the KGH ART clinic were much older than the ALWHA. The ALWHA found that disrespectful.

"….Most of the staff are old, and even if we dress like adolescents to impress them, they mock us and they cannot tell us their secrets…….i think the hospital should deploy young people to this clinic just like IPs do……even with adequate training and skills in counselling …those ALWHA only trust their age-mates…. So, our IPs should invest in training the YAPS… who counsel their peers for better outcomes…." **KI_3**.

Limited confidentiality in service provision

The ART clinic was labelled and situated in between departments which opened ALWHA to general patients that sought care from KGH.

"…during the days when adolescents seek care, they meet very many patients with other ailments with-in the hospital that see them at this ART clinic…that can risk their HIV+ status being known against their will in the communities including their sexual partners….Some men even looked at these girls with seducing eyes…..as if they wanted to have sex or marry them……that threatens our (young) people (ALWHA)…" **KI_7 and KI_3**.

ALWHA's files were mixed up with those of other PLHIV that sought care from the KGH ART clinic.

"…You man (PI), our files are kept on tables (shelves) ….in a funny way…..and mixed with those of other patients seeking care at the hospital including our parents (or older patients)……don't you think any visitor in this facility can see our information…?" **FGD in school boys < 18yrs**.

In addition, there was a designated window at the Central Pharmacy from which only ALWHA use when refilling the antiretroviral medicines every last Friday of the month.

"…that dedicated window from where we get our drugs serves only us (ALWHA)…and is too exposed between Departments…those (people) from the Dental clinic, general OPD and Laboratory see us their…and sometimes the health workers are too harsh as they dispense the drugs…." **FGD Mixed boys and girls below 18 years in school, KI_7, KI_3 and KI_2**.

The health workers reportedly shared clients' information with the community members without consent from the ALWHA

"...I think that some health workers are mentally sick (also) …my first marriage two years ago was spoilt by a health worker from here (KGH)….she told my community members my HIV+ status and my husband left me……I am not sure whether (the same) it will not happen to my current marriage…" **FGD girls out of school > 18 years**

Even at school, ALWHA especially those in the boarding sections reported the bleaches of confidentiality by the school nurses

"…one parent confided with a school nurse and a teacher about the HIV status of his child……those people (Nurse and teacher) publicized the information to the entire school…… and the girl almost dropped out of school…." **FGD for girls in School and KI_2**.

With-in the community-based services extended to ALWHA, the client community drug distribution (CCLAD) strategy risked forceful disclosure of the HIV+ status among ALWHA.

"…much as CCLAD is good ….but you cannot trust someone with your health records….this system can bring stress to the ALWHA… they are like; won't my colleague talk to other people about my HIV status" **FGD girls out of school > 18 years.**

Lack of integration of services

The psychosocial strategy to support the ALWHA was mainly done by persons living with HIV/AIDs (PLHIV) who were mentored to provide peer to peer psychosocial. The PLHIV and YAPS were trained in counselling by IPs including Baylor Uganda to fix the gap of lack of professional counsellors at the ART clinic. The capacity of the PLHIV and YAPS in providing psycho-social support was limited.

"…..In this (ART) clinic, we are not supported by professional counselors……but we do have prominent PLHIV and YAPS who were trained by Baylor many years back who support the PLHIV with psychosocial support…….and those (mental health challenges) beyond our control with-in the (ART) clinic are referred to KGH's Psychiatric Department for further management….." **KI_2 and KI_4**.

All services needed by the ALWHA were not readily available in the ART clinic.

"…..in our healthcare setting, the ART clinic does not work independently, if an ALWHA needed a service which is shared with other patients, we refer them to those Departments with-in the hospital for care……" **KI_1**.

The ART clinic lacked integrated services.

"….we don't have a laboratory at the ART Clinic……. there is also no laboratory staff attached to the ART Clinic that takes off blood (samples)…so we seek assistance from the staff serving the whole hospital…" **KI_3 , KI_4 and KI_2**.

Even when the IPs in health designed trainings to boost the capacity of staff serving at ALWHA, the District Health Officer (DHO) recommended health workers who were not attached to the ART clinic. In addition, there were uncoordinated transfer of health workers with HIV care skill out of KGH ART clinic.

"…for many years now, I have not got any training in AFHS……..even my colleagues have not been trained.....the district (DHO office) just takes its people (Health workers in Kamuli District Local government) who are either friends or related and not attached to the ART clinic…and you just hear news... sometimes, the experienced staff are also transferred away... " **KI_4**.

Majority of the ALWHA did not have access to technological services including internet driven cell phones.

"….we created a WhatsApp group called Kamuli network of young people living with HIV which we use to share information about our lives, counsel peers and mobilize ourselves for meetings……unfortunately some of us miss out….because the (cell)phones and data are expensive" **A female participant in the FGD of Girls, < 18yrs, in-school, KI_7 and KI_3**.

DISCUSSION

Description of service related challenges at KGH ART clinic

Despite reference to the Uganda clinical Guidelines (UCG) (MOH, 2023b) during provision of care to ALHWA, there was partial integration of services at KGH ART clinic. This compromised the desire to combat HIV/AIDs among adolescents (Bulstra et al., 2021). This practice in the provision of care to ALWHA was connected to inadequate infrastructure to provide health care in Uganda (Byansi, Ssewamala, Neilands, Mwebembezi, & Nakigozi, 2023). Partial integration of health care services interfered with the effort to combat HIV/AIDs among adolescents as they could be diverted from reaching the referral points due to lack of trust in the service providers (Subramanian et al., 2023). This was identical to an earlier Ugandan study which attributed the rise of HIV infections among adolescent to inadequate integration of Sexual Reproductive Health and Rights (SRHR) in HIV care (Mugabi et al., 2023), thus justifying the necessity to merge and strengthen HIV and SRHR services with-in the health care system, especially in countries that were overburdened by HIV/AIDS like Uganda (Akatukwasa et al., 2019). Relatedly, Mental Health Care (MHC) which was extended to ALHWA was insufficient. Even where it was offered, it also focused on minor mental disorders and drug adherence. Yet as reported earlier, ALWHA suffer from serious mental health challenges associated with their unique way of life different from that of their peers (Kaunda-Khangamwa et al., 2020; Nabunya & Namuwonge, 2023). Also, both health workers and linkage facilitators that offered the MHC with-in the ART clinic lacked refresher training in the provision of AFHS which further complicated the situation. This finding was in agreement with a South African study in 2020 which reported that mental health challenges faced by ALWHA were not addressed by the healthcare service providers and that contributed to non-adherence to HIV treatment, non-viral load suppression and increased the odds of HIV transmission (Haas et al., 2020). In regards to reproductive health services that were offered to ALWHA at KGH ART clinic, it is reported here that contraceptives were offered to sexually active ALHWA with-in the reproductive age as well as emergency contraceptives to those involved in unsafe sexual intercourse. These contraceptives were offered from the Family Planning Clinic serving the general population visiting the hospital and not the ART clinic. This contributed to low uptake of contraceptives thus risking ALWHA to conceive unintended pregnancy (Shinar et al., 2022). The KGH ART clinic had no preconception care packages to ALWHA. This predisposed ALWHA girls to pregnancies when their bodies were not in the best state of health to support the pregnancy (Atkins et al., 2021). The girls that conceived could only get Antenatal Care (ANC) through the general ANC clinic. While at KGH ANC clinic, pregnant ALWHA encountered with a crowded clinic which inconvenienced their access to ANC. Similarly, studies in South Africa, Zimbabwe and Uganda reported that the desire for reproduction were conceptualized to be dynamic among adolescent girls including ALWHA (Rahyani, 2023). Scholars recommended that women living with HIV were in need of special attention to achieve their desires of safe gestation and uninfected babies (Duri et al., 2022), and therefore integrating FP in HIV prevention programming could be of great benefit in the fight against HIV among ALWHA since such decision would be taken in their best health state (Atkins et al., 2021). This was in line with a Ugandan study which reported that majority of ALWHA had inadequate knowledge on HIV/AIDs control which increased their odds of unwanted pregnancy, re-infection and acquiring sexually transmitted infections which could have defeated the efforts made on HIV prevention (Mbalinda, Kaye, Nyashanu, & Kiwanuka, 2020). Also, a study in Kenya also advocated for a comprehensive package of care for ALWHA to include Family Planning services after realizing that emphasizing abstinence among ALWHA had not worked (Lawrence et al., 2021). In connection to community services, KGH ART clinic offered ART services to ALWHA with suppressed viral loads with-in their communities through the Community Client-Led ART Distribution (CCLAD) model. The CCLAD model involves supplying of multiple ARV doses of up to six months to ALWHA with suppressed viral loads with-in their communities. CCLAD reduced on the burden of ALWHA including costly routine travels to KGH. Community-based HIV care services helped service providers to extend the health care package to clients with an understanding of the factors that influenced their actions (Miyingo et al., 2023). In addition to CCLAD model, Assisted Partner Notification (APN) was also done among the sexually active ALWHA at the ART clinic. APN involved tactical engagement with ALWHA to disclose their sexual partners (Kinera, 2023). This enabled health care workers from the ART clinic to trace for those sexual partners for HIV screening and care.

These activities were done with confidentiality unless the ALWHA consented otherwise. However, the community-based services were destabilized by scarcity of resources needed to facilitate HCWs while in the community. This was related to a United States of America's (USA) study which stressed that Adolescent health programs that concentrated on extending HIV care to adolescents with-in their localities registered better indicators like ART adherence, HIV viral load suppression and contributed to prevention of further spread of HIV (Fortenberry et al., 2017). Accordingly, the number of CD4 in HIV-infected individuals is an indicator of HIV progression and death from AIDS. The low (equal or less than 200 Cells/mm^3 of blood) CD4 cell count level indicates that the immune system may be compromised (Farhadian, Mohammadi, Mirzaei, & Shirmohammadi-Khorram, 2021).Such community engagements contributed to combined efforts to innovate sustainable measures which could combat the effects of HIV/AIDS among adolescents (Laski, 2015).

The challenges faced by ALWHA seeking care at KGH ART clinic

The individual medical files of ALWHA were kept on open shelves, mixed with those of general patients. This risked the forceful exposure of ALWHA's confidential information without their consent. In addition, there was a dedicated window on the Central Pharmacy for dispensing ARVs to only ALWHA. This made the public to know the HIV+ status of any adolescent receiving services from that dedicated window even if such adolescent did not disclose by his/her mouth, and thus posing a risk of disengagement from care. This clinical organization could be linked to limited resources to design adolescent friendly services but also to inadequate refresher trainings of HCWs in provision of AFHS. This was in agreement with a Kenyan study where ALWHA were more likely to be retained in care at clinics with youth-targeted designed programs which had a youth-friendly waiting area, evening clinic hours and ran by providers with adolescent health training (Enane et al., 2022). This called for further investigations to determine how to effectively implement youth-friendly strategies across clinical settings where ALWHA received HIV/AIDS care (Lee et al., 2016).

In addition to privacy and confidentiality related challenges at different care points with-in KGH, ALWHA also lived under fear of forceful disclosure of their HIV+ status while at home and school. This was linked to absence of robust HIV programs that targeted strengthening of HIV care among ALWHA with-in their families and schools (Sachathep et al., 2021). This was in-line with of an earlier study in both Kenya and Uganda which reported that there were weak health systems to support ALWHA while in schools and with-in their families (Johnson-Peretz et al., 2022). The weak health systems led to loss of valuable time at school as some ALWHA had to forego some school days to visit their respective hospitals to access ART care (Wiggins et al., 2022), those that were learning from boarding schools had limited access to health care which reversed the fight against HIV/AIDs (Kimera et al., 2019). Similar findings were reported in Western Uganda in 2020 where the school going ALWHA were stigmatized and thus disengaged from care (Gordon, Talbert, Mugisha, & Herbert, 2022). The researchers recommended the designing of programs to address the health system challenges with-in schools to improve the management of HIV among the adolescents (Kimera et al., 2020).

While at KGH ART clinic, ALWHA were mainly served by HCWs who were not their peers by age. This limited involvement of young healthcare professionals in the provision of healthcare to ALWHA was inconsistent with the recommendations in an earlier study in LMICs which emphasized engagement of young professional healthcare worker in the management of ALWHA (Mkumba, Nassali, Benner, & Ritchwood, 2021).

At KGH ART clinic, there were no deployment of critical cadres including Doctors, Pharmacists and laboratory scientists. This compromised the services offered to ALWHA with evidence of tasking shifting were nurses were involved in prescription of medicines to ALWHA in the absence of the Clinical Officer. Collection of blood samples was solely done by the Nurses attached to the ART clinic. Such deployment of HCWs was antagonistic to integrated healthcare models that have proven effective in the delivery of care to adolescents in a metacentric study done in 2022 (Subramanian et al., 2023). Therefore, efforts are needed to catalyze the design and implementation of a healthcare service delivery model with a complete set of competences to efficiently respond to the healthcare needs of ALWHA.

Additionally, the healthcare HCWs especially those employed by KDLG who were available could not be easily identified, this was due to working either in non-uniform and or in uniforms without name tags. Therefore, the ALWHA being served could not easily bond with their service providers yet this is important for continuous guidance and support in care. This challenge was

partially mitigated by MJAP which deployed uniformed and identifiable young health care workers to serve the ALHWA. Unfortunately, most of the health workers deployed to the ART clinic by MJAP were mainly the Linkage facilitators and YAPS who had limited knowledge about HIV/AIDs among adolescents. This was in agreement with an a 2021 study done in South Africa which discovered that peer support interventions had persistently formed a part of ALWHA responsive service packages, but they were mainly tailored to a few HIV program outcomes such as linkage to ART, adherence to treatment, retention to care and viral load suppression (Rencken et al., 2021). Therefore, Peer Supports need HIV care related trainings to equip them with adequate knowledge and skills required to comprehensively support ALWHA (Øgård-Repål, Berg, Skogen, & Fossum, 2022), and the health care professions serving in the ART clinics should be of the right mix by age, gender and competences to foster mutual trust for better HIV care outcomes (Chilimba, 2022).

Furthermore, the CCLAD model in which ARVs were extended to ALWHA with-in their communities contributed to anxiety among some ALWHA. Whereas this model was innovated to reduce on the barriers to access to care among PLHIV in general, there was suspicion among ALHWA that at some point, their colleagues that had overcome stigma would disclose the HIV status of their peers thus breaking their confidentiality. This therefore called for more training of the community-based HIV care with emphasis on the importance of confidentiality and involvement of ALWHA in designing those programs. This was earlier unearthed in a SSA study where researchers reported that in-service refresher training of health workers providing care to ALWHA was the cornerstone for containing HIV/AIDS in the population including ALWHA (Goldstein, Salvatore, Ferris, Phelps, & Minior, 2023). Trained healthcare providers gathered adequate knowledge and skills that were applied to offer appropriate healthcare that led to strengthened case management and viral load suppression (Lally et al., 2018). Trainings especially those that targeted primary care workers counteracted undesirable outcomes like ARV treatment failure and development of resistance to the drug regime which were significantly higher among ALWHA (Mulawa et al., 2023), this might have resulted from untimely administration of ARVs due to insufficient support to protect adolescents' privacy, confidentiality and treating them without respect or with judgment (Abubakar et al., 2016).

ALWHA that seek care from KGH ART clinic encountered drug stock-outs especially for non-ARV drugs. This was linked to exclusion of HIV related programs from the KGH's budgeting process. The hospital management board (HMB) member of KGH anticipated that activities with-in the ART clinic were fully funded by the implementing partners in health attached to ART clinic thus diverting resources to other priority areas. This created a gap because funders of HIV programs in Uganda are in the process of shifting their aid to other priority areas due to economic shocks in their respective home counties (Dybul et al., 2021). If such changes are fully implemented, it will lead to the loss of employment to proficient personnel from HIV care and loss of a strengthened clinical HIV management system (Tamrakar, Chakraborty, Singh, & Kumar, 2024). Therefore, the Uganda government should devise means to align with the WHO advocacy for increased home-based financing to health care at all healthcare levels (WHO, 2020).

In respect to integration of health care, there was limited integration of services offered to ALWHA at KGH ART clinic. This led to linkage of ALWHA that needed services such as FP, Pediatric HIV care for exposed babies born by ALWHA and ANC for example to other Departments outside the ART clinic. Also, the Early Infant HIV Diagnosis (EID) clinic was detached from the ART clinic which complicated the transition of pediatrics into adolescents HIV care. Such a harsh health system destabilized the effort in the fight against HIV earlier registered in pediatric and adults HIV/AIDS care. The circumstances were similar to South Africa (SA) which had a high prevalence of HIV/AIDs among adolescents, the ALWHA blamed the SA's health system for long waiting time and congestion (Bond et al., 2019). The ALWHA demanded for a Differentiated Models of Care (DMOC) to increase on their access to care for better retention to care, viral load suppression in order to minimize the odds of HIV transmission (Woollett, Pahad, & Black, 2021). This would help to harness the milestones achieved in pediatric HIV care to positively impact the HIV care among ALWHA (Nalwanga & Musiime, 2022).

The organization of KGH ART clinic was problematic due to its inability to offer respectful, confidential and integrated HIV care services to adolescents. This is counter-productive to the WHO effort to end the HIV/AIDs by 2030 (WHO, 2023).

The ART clinic lacked enablers in guiding adolescents to their service points at the entrance or with-in the hospital compound indicating the services offered to adolescents. This was not in-line with the Uganda Ministry of Health (MOH) guidelines for

streamlining the health system to provide care to both adolescents and young people (Miyingo et al., 2023). Relatedly, even those ALWHA that identified the ART clinic by themselves, those that were linked through the community and KGH system were delayed to access care due to limited number consultation rooms which offered both visual and audio privacy. This was similar to findings of an earlier Eastern Mediterranean study (WHO, 2017) which called for investment in the re-organization of adolescent clinics by setting up special structures through which healthcare services could be offered to them. Such investments in the re-organization of the adolescents' clinics were pertinent for countries in SSA including Uganda with marginal resources invested in health care (Nannini, Biggeri, & Putoto, 2022). The absence of adolescent friendly structures such as adequate consultations rooms interfered with ALWHA's access to care in a respectful and confidential manner at the ART clinic. Similar findings were reported in the Kenyan study (Mugo et al., 2023). Despite advocacy by the MOH and partners in health including WHO for client-centered care (Sundararajan, Mwanga-Amumpaire, King, & Ware, 2020), there was no provision of IEC materials to empower adolescents for self-care to complement on the Hospital-based ART services (Obeagu, Obeagu, Ede, Odo, & Buhari, 2023; Priwardani et al., 2023), thus limiting their involvement in the fight against HIV. This was associated with limited resources that were required to organize the IEC materials for adolescents in the ART clinic. This inability to provide IEC materials to ALWHA was in agreement with a 2020 study in SSA thus restraining their involvement in care for sustainable gains in the fight against HIV/AIDs (Sam-Agudu, Folayan, & Haire, 2020). In contrast, KGH integrated HIV care into the routine healthcare to all persons that visited the health facility. Such organization increased HIV surveillance capability with-in the hospital and the community. The integration fostered linkage of HIV clients including adolescents to the ART clinic for care. This was in concordance with a systematic review (Putta et al., 2022) which emphasized the need to craft health systems that identify, support and link ALWHA to appropriate care including those transitioning from pediatric HIV care. In addition, ALWHA's files and registers at KGH ART clinic were kept in a general room mixed up with those of other patients on open shelves. This practice exposed the confidential information of ALWHA to different persons without their knowledge and consent leading to disengagement from the principles for provision of Adolescent Friendly Services (AFS). This was attributed to limited application of modern technologies such as computer-based data management systems to complement the hardcopy files thus leading to accumulation of bulk files kept on exposed shelves. In an earlier study, such health system's designs that were not sensitive to the trends such as the modern technologies frustrated the fight against HIV/AIDs (Bekker et al., 2018). In respect to the organization of staff that served ALWHA at KGH ART clinic, the carders that served them under the government employment terms included three nurses and one midwife. Sometimes, those staff who had specialized training in HIV care would to be transferred to other departments with-in KGH and lower facilities in Kamuli district. This compromised timeliness and comprehensiveness of services' delivery to ALWHA. In response to that, KGH in partnership with Makerere University Joint AIDs Program (MJAP) enhanced the services at the ART clinic by recruiting staff that were deployed to the KGH ART clinic. The collaboration between KGH and MJAP improved on the ART clinic organization to serve ALWHA. Those partnerships and involvement of young people are pertinent in the fight against HIV/AIDs. This was attested by a 2022 Sub Saharan Africa study which recommended that ALWHA programs should be designed in partnership with empowered adolescents to counter their uncommon needs that characterized this unique period of growth and development (Atujuna et al., 2023). Conversely, such partnerships were threatened by plans among HIV programs' funders to shift their aid to other priority areas like Family planning with a perception that the HIV/AIDs threat has been contained (Chenneville, Gabbidon, Hanson, & Holyfield, 2020). Such changes if fully implemented would lead to the loss of proficient personnel and loss of a strengthened clinical HIV management system (Tamrakar et al., 2024). This could worsen the HIV/AIDs pandemic among ALWHA (Zakumumpa, Kwiringira, Rujumba, & Ssengooba, 2018). However, there is a deliberate effort by the MOH to increase domestic funding towards healthcare (Davies, Geddes, & Wabwire, 2021). This would ensure that HIV/AIDs in Uganda is controlled despite withdraw of donor funding. In relation to reduction on the healthcare expenditure and maintenance of ART adherence, a community client led ART delivery (CCLAD) model was implemented to reduce on the health care expenditure among ALWHA with suppressed viral loads. This was after it was realized that catastrophic expenditures towards health care contributed to ALWHA's disengagement from care (Mokhele et al., 2024). Subsequently, the CCLAD model coupled with clients follow up through phone calls minimized the risk of contraction of COVID-19 due to their minimal contact between ALWHA and the HCWs. This was in-line with a multi-centric study done in 2022 that discovered that COVID-19 pandemic had paralyzed and threatened to worsen disparities in the organization for access to HIV/AIDS care among ALWHA that demanded for continuous care (Lowenthal et al., 2022). The diversion of resources into the emergency response to the COVID-19 pandemic led to disruptions of non-COVID-19 health service delivery strategies including HIV/AIDs (Logie et al., 2024), yet there was no

empirical data on the impact of COVID 19 control measures on PLHIV (Linnemayr et al., 2021). Adaptations that lessened contact between ALHWA and health workers but emphasized client autonomy, self-care, and decentralization of health-care provision to the community level (Rendall et al., 2024). This was realized through the use of electronic communications, virtual platforms and social media for health education, staff supervision, and monitoring of ALWHA on care (Murphy et al., 2022).

Limitations and strength of the study

One of the major strengths of this research is the use standard tools to capture multiple data sources including an observation checklist, focus group discussions and Key Informant (KI) interviews with not only ALWHA but also their HCWs. The KIs gave a valuable and different perspective from ALWHA and often gave depth and context to the comments of ALWHA. During the FGDs, ALWHA were clustered in their different categories i.e. ALWHA in school, those out of school, those who were married, the unmarried, the boys alone, girls alone and then mixed FGDs. This encouraged free discussions with minimal gender-based dominance. The health care workers explained how these adolescents were as children, looking at the challenges they had faced and overcome. The HCWs explained how the adolescents were often sick and therefore so pleased to receive their medication in order not to be ill and suffering from opportunistic infections. On the other-hand, were limitations, the study was conducted with ALWHA attending an ART clinic in a rural setting. The findings may be unique to KGH and may not be generalized to larger urban settings. Secondly, being a cross-sectional study we are only able to present a snapshot of health system challenges. However, the findings are now available as a baseline for further investigation in this research area. Lastly, due to ethical challenges associated with speaking to adolescents who have not known their HIV status, we only recruited adolescents who were fully aware of their status and were attending KGH ART clinic. This may bias the results and may not make them generalizable to those who are either not aware of their HIV+ status or those who are aware of their HIV+ status but not attending KGH ART clinic.

Conclusion and recommendations

This study assessed the health system challenges faced by adolescent living with HIV/AIDs at Kamuli General Hospital ART clinic. This study discovered that the clinic lacked enablers including signals indicating the services that were available for adolescents and IEC materials to empower ALHWA to complement care. Even those adolescents that identified the ART clinic were inconvenienced with consultation rooms which lacked audio and visual privacy which were shared by all PLHIV and an ART clinic positioned in between different departments thus exposing ALWHA to general patients which risked forceful disclosure of their HIV+ status. In addition, the ALWHA at the ART clinic were served by HCWs of relatively advanced age without identification thus hindering their bonding for open discussions for improved care. Furthermore, the limited integration of care at the ART clinic contributed to the disengagement of ALWHA from care due to long hospital waiting time for service in the general clinics. Psychosocial support was offered through a peer counselling strategy with minimal training. The services offered at KGH ART clinic were not integrated. The ALWHA were therefore referred to Departments including ANC and FP clinic with-in and outside KGH were the ALWHA mixed with the general patients for care. Additionally, there was no preconception care services offered to ALWHA that had pregnancy intentions. The ALWHA were challenged with exposure of their documents which were kept on open shelves and mixed up with those of other patients, this compromised the confidentiality to their health information. Therefore, if health system challenges related to disrespectful provision of care, inappropriate integration of care and breach of confidentiality are not timely reversed, the fight against the HIV pandemic is far from over. ALWHA were served by HCWs who lacked in-service training in the provision of Adolescent Friendly Health Services which contributed to harsh experiences including getting ARVs from a dedicated window which served ALWHA only at the Central Pharmacy. There were stock outs of drugs for treatment of other ailments that ALWHA suffered in addition to HIV. This was partly linked to KGH budgeting which did not prioritize the ART clinic with a perception that the ART clinic is well funded through donor funding. The challenges of ALWHA are sometimes missed in healthcare delivery due to lack of their involvement in the planning for their own health at the ART KGH clinic.

The following recommendations are made in consideration of the results and conclusions of the study. The assessment of the organization of KGH ART clinic for delivery of ART to ALWHA showed that concerted effort are needed to improve on the care

to reverse the HIV/AIDs in Kamuli District. The inherent pursuit for autonomy among ALWHA needs to be tapped and channeled into designing health programs that are responsive to their health needs. Thus, I recommend that KGH improves on the implementation of the adolescent friendly health services by setting up pit latrines that serve adolescents in their respective sexes, and separating latrines of adolescents from those of general out-patients. This may be done with involvement of ALWHA, the community and other implementing partners in health. Such innovations could strengthen the provision of HIV care to ALWHA in the KGH, at their homes, communities and schools. In addition, the hospital may allocate funds offered to it by the Government of Uganda to enhance the donor support from partners in health supporting the ART clinic. Additionally, KGH may advocate for contribution of a friendly user fee from PLHIV and well-wishers seeking care from KGH to support the ART clinic. Furthermore, the District Health Department may conduct seminars to orient health care workers, teachers, ALWHA and their parents on their importance of supporting ALWHA. Finally, this study focused on ALWHA whose HIV+ status are known to themselves and their healthcare providers. Future studies are needed to assess the health system challenges faced by ALWHA who are not yet aware of their HIV+ status.

Declarations

Author Contribution

B.B - Conceptualized the idea, developed the concept and took lead at every step of developing this workA.S - Participated in formulating data data collectionH.G.A -R.N -V.B

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