

# The Role of Mass Media Campaigns in Improving Adherence to Antiretroviral Therapy Among Adolescents Living with HIV in Southwestern Uganda

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**Background:** Globally, about 1.8 million adolescents between the ages of 10 and 19 were living with HIV by close of 2021, of these, about 1.5 million were living in sub-Saharan Africa. This study explored the influence of mass media campaigns in promoting adherence to antiretroviral therapies among adolescents living with HIV in southwestern Uganda.

**Methods:** We conducted a phenomenological qualitative study design that was adopted to explore the role of mass media campaigns on adherence to antiretroviral therapy among adolescents at the adolescents' HIV clinic Mbarara Regional Referral Hospital. The FGDs were conducted in Runyankole-Rukiga, and they were transcribed verbatim and later translated to English. Data were analyzed using thematic analysis.

**Results:** We conducted 7 Focus Group Discussions with adolescents living with HIV aged 10–19 years and 5 key informants' interviews with the health care providers. Results from the analysis were grouped into three broad themes: awareness of mass media HIV campaigns promoting adherence to ART, influence of mass media campaigns on adherence to antiretroviral therapy, and preferred mass media mode of delivery by adolescents' living with HIV. Participants preferred broadcast media channels and messages that featured success stories of people living with HIV.

**Conclusion:** HIV mass media campaigns influence adherence to antiretroviral therapy among people living with HIV. It is recommended that HIV-related media campaign designers consider the unique needs of adolescents while designing and airing out various media campaigns. This will influence their positive living and thus lead to their increased health life expectancy.

**Keywords:** adherence, antiretroviral, campaigns, HIV/AIDS, mass media, therapy

## Introduction

In 2021, slightly about 1.8 million adolescents between the ages of 10 and 19 were living with HIV worldwide and of these, about 1.5 million were living in sub-Saharan Africa.<sup>1</sup> By close of 2019, about 170,000 adolescents aged 10–19 years were living with HIV in Uganda.<sup>2</sup> With increased access to antiretroviral therapy (ART), there has been a significant improvement in the life expectancy of people living with HIV.<sup>3</sup> However, adherence to ART has been noted to be low among adolescents especially in low-income countries.<sup>4–6</sup> For instance, a study conducted in Togo and Zambia found that, ART adherence failure rates for adults ranged from 10% to 15%, whereas the failure rates for adolescents were reported to be as high as more than 50%.<sup>7,8</sup> Good ART adherence is the patient's ability to follow a treatment plan, take medications at prescribed times and frequencies, and follow restrictions regarding food and other medications as recommended by the treatment provider.<sup>9</sup> Maintaining adherence to ART is one of the most significant challenges for optimizing health outcomes in adolescents living with HIV.<sup>10</sup> While the importance of ART adherence is

understood, it can be more challenging among adolescents due to their emotional and lifestyle characteristics, as well as cultural and social factors and health service issues. In addition, adolescents often lack the information they need to understand HIV and effective treatment.<sup>11</sup> Therefore, HIV-related service providers and stakeholders are pivotal in ensuring adherence to ART among adolescents.

Mass media campaigns are commonly used as interventions for creating awareness and dispatching information about various topical issues that affect the community.<sup>12</sup> These campaigns normally take on communication media channels such as television, billboards, radios, and newspapers.<sup>13</sup> Owing to the low adherence to ART, especially among adolescents living with HIV, governments and HIV activists have adopted mass media campaigns to spur behavioral change in the general population.<sup>14</sup> In South Africa, LoveLife multimedia campaigns have achieved high coverage and measurable effects on attitudes, condom use, ART adherence, and uptake of HIV testing services among young people.<sup>15</sup> In Uganda, HIV mass media campaigns such as the Short Message Service (SMS) campaign, Obulamu, News Reporter campaigns, Ministry of Health HIV Campaigns, TASO campaigns, and many more others have been aired out both in the print and broadcast media country wide with the aim of facilitating behavioral change in the general population.

Mass media campaigns on HIV/AIDS are intended to help in promoting awareness of HIV/AIDS information which would in turn lead to a shift in the behavior of the general population.<sup>16</sup> Several studies have been done on the influence of mass media campaigns on uptake of HIV voluntary counselling and testing services. However, there are few studies that have been done on the relationship between mass media campaigns and adherence to ART among adolescents in Uganda, although such linkages have been established elsewhere.<sup>15</sup> Therefore, we set out to explore the role of mass media campaigns in promoting ART adherence among adolescents living with HIV in southwestern Uganda.

## Methods

### Study Design

This was a purely qualitative, descriptive research study using a phenomenological approach. Data was collected by conducting focus group discussions (FGDs) and key informant interviews (KIIs) to explore the role of mass media campaigns in improving adherence to ART among HIV positive adolescents aged 10–19 years and receiving care at Mbarara Regional Referral Hospital (MRRH) in southwestern Uganda. The actual data collection activities were done between the months of July 2020 and August 2020.

### Study Setting

The study was conducted at the Adolescent HIV Clinic of MRRH, a government of Uganda's referral hospital for the Southwestern region. The hospital serves all the districts that make up south western Uganda but it also receives patients from the neighboring districts of Tanzania and Rwanda. Approximately 400 adolescents receive care at the adolescent's HIV clinic of the said hospital. The study's FGD participants included adolescents living with HIV aged 10–19 years and receiving care at MRRH Adolescents' clinic, and the study's key informants were health workers who had served in the same clinic for at least 6 months before the study. The key informants included two (2) doctors, two (2) nurses, and one (1) counselor.

### Data Collection Procedures

Data from FGDs were collected until saturation point was achieved. This was a point where no more new information was being generated from the FGDs. We conducted seven FGDs with Adolescents. We also conducted 5 key informants' (KIs) interviews with the health care workers in the adolescent's clinic at MRRH. Participants in the FGDs were given UGX 5000 (1.4USD) as transport refund and the KII participants were given UGX 10,000 (2.8 USD). Clients who attended the adolescent clinic and met the inclusion criteria, that is to say, HIV positive adolescents aged 10–19 years receiving care at MRRH and were not terminally ill nor under the influence of substances were requested to participate in our study. Purposive sampling technique was used to select the key informants based on their expertise knowledge in the management of HIV/AIDS among adolescents.

Written consent was obtained from all selected participants of age 18–19 years explaining the purpose of the study and clarifying that participation was entirely voluntary. Similarly, informed assent was obtained from the participants aged 10–17 years who had come to the clinic with their guardians or parents, and these (parents/guardians) were asked to consent on their behalf. Written informed consent was also obtained from all the key informants before they took part in the study. Data were collected using FGD and KII guides. The guides composed of open-ended questions about the influence of mass media campaigns on ART adherence among adolescents living with HIV and receiving care at MRRH. The FGD guide was translated into Runyankole-Rukiga, a language that is spoken by most people in southwestern Uganda. The data collected included the awareness of the mass media HIV campaigns, the influence of the mass media HIV campaigns on ART adherence among adolescents living with HIV and the type of media most preferred by the adolescents living with HIV. On average, each FGD took about one hour and forty-five minutes and each KII took about twenty minutes.

## Data Management and Analysis

Focus group discussions were conducted in Runyankole-Rukiga, a language that was mostly spoken and understood by our FGD participants. Key informant interviews were conducted in English, the official language of Uganda. All interviews were audio recorded for transcription and translation after participant agreement and then transcribed verbatim in Runyankole-Rukiga and translated into English. Thematic content analysis was adopted for this study, because it allows the researchers to fully reveal the meanings emerging from the data while conceptualizing narrative reports as per significant units.<sup>17</sup> Four researchers, JNN, ST, BB, and SA, listened to the audio recordings back and forth while transcribing the data verbatim. The transcripts were translated from Runyankole-Rukiga into English by an expert translator. Two researchers, SA and BR, read and reviewed the transcripts and manually developed codes and categories based on the themes that emerged from the data in relation to the research question. The findings were validated by returning to participants and asking them to compare them with their findings, and final changes were incorporated into the findings.

## Ethical Considerations and Consent

Ethical approval for the study was given by the Mbarara University of Science and Technology Research Ethics Committee (10/01-20) and complied in line with the Declaration of Helsinki ethical guidelines pertaining research involving human subject participants. The study was also registered with the Uganda National Council of Science and Technology to conduct the study in Uganda (UNCST RESCLEAR/01) and permission from the Hospital Director to conduct the study at the hospital. The study procedures were explained to the adolescent and KII participants, and they all provided written informed consent. For participants under 18 years, assent was obtained. In both the consent and assent forms, participants were informed of publication of their anonymised responses.

## Results

The participants' responses were coded, and three broad themes were generated from the data, namely, awareness of mass media HIV campaigns promoting adherence to ART by adolescents living with HIV, influence of mass media campaigns on adherence to ART by adolescents living with HIV, and mass media mode of delivery preferred by adolescents living with HIV.

### Awareness of Mass Media Campaigns Promoting Adherence to ART Among Adolescents Living with HIV

Many respondents stated that they are aware of the mass media HIV campaigns. Examples of mass media campaigns included “Obulamu” which was being aired on different media, primarily television, radio, magazines, posters, and phone SMS. One participant expressed awareness of these messages and was quoted saying,

I have heard about Obulamu health campaigns on TV and radios telling people on ARVS to stop drinking alcohol and that HIV kills. (16-year-old female, FGD 3)

We found that the majority of the participants were aware of Obulamu, News Reporter campaigns, for example, one participant reported that

I have also heard about Isaac and Sarah advert where Sarah was reminding the husband Isaac to take his drugs. (18-year-old male, FGD 6)

Other than Obulamu messages respondents were also aware of messages by Rock Point 256, HIV awareness drama played on Radio. To this regard, one respondent said,

I recently heard a message on the radio saying that now that corona (COVID-19) has come don't think that HIV has ended it's still there and kills so keep taking the medication, because the disease kills and we should stop spreading it. (19-year-old male, FGD 2)

Conversely, we found that some respondents reported that they were not aware of any HIV media campaigns in their settings. Interestingly, almost a third of the respondents reported that they had gotten information about these campaigns from health workers, but they had not seen or heard the campaigns by themselves. Results from the key informant interviews confirmed that most adolescents receiving care at MRRH had been exposed to HIV media campaigns, and they (adolescents) were indeed aware of them as expressed in this verbatim:

There is a TV set at the triage and usually displays some of the recorded videos so as to air out the messages about ART adherence. The message is in both English and Runyankole. (Counselor, KI 5)

The messages that the participants had received in the mass media campaigns included adherence to ART, stigma, family planning, condom use, circumcision, abstinence, counseling and testing, positive living, as well as antenatal care. Such messages were aired out in the print, broadcast and folk media. Participants also pointed out that they found these HIV mass media campaigns at the health facilities they attended. For example, a participant reported that

In hospitals like at our clinic they be saying that we should keep taking our drugs well because if we don't then the virus will make us powerless (destroy our immunity). They usually put for us such messages on the TV here at the hospital" and " in hospital like here, sometimes you go to the clinic you find posters or you hear someone saying that I saw an advert. (19-year-old female, FGD 1)

Indeed, data from key informants agreed with these results where they (KIs) expressed use of media campaigns in their adolescent HIV clinic,

We also run messages on TV at the hospital and these messages are often telling us about HIV and other diseases that can come up if one does not take their medications very well. We also have clip videos of Rock Point 256 and Obulamu that we put for our adolescents like we usually call them when it's not their clinic day and are not busy then we put for them these videos to watch and we evaluate what they have learnt from the videos at the end.(Doctor, KI 3)

## Influence of Mass Media Campaigns on ART Adherence Among Adolescents Living HIV

Under this section, participants identified ways through which the HIV mass media campaigns influenced their adherence to ART. Among others, participants underscored these messages for offering them inspiration. In other words, participants became encouraged and motivated, to correctly take their medications. For instance, one of the participants in the FGD appreciated the messages in this verbatim:

... They encourage and motivate me to take my dugs so as to have a healthy life and look like other healthy people and I prevent myself from getting the severe signs and symptoms of HIV and even getting infected with other illnesses because if you don't take drugs then you become wasted and look bad. (15-year-old male, FGD 2)

Indeed, data showed that these campaigns inspired participants to adhere to treatment, fight off enacted stigma and rejection as well as increased their awareness of the consequences of non-adherence to ART. These results were alluded to still by almost all the Key Informants. For instance, one of them commented that

They have helped the adolescents to avoid early pregnancy and infecting others as well as avoiding reinfection on top of ensuring that our young people enroll and adhere to ART. (Nurse, KI 1)

In fact, some Key Informants confessed to having used these HIV media campaigns in their daily work as they attended to these adolescents as expressed in this verbatim:

Whenever I see something on TV through these campaigns and it catches my attention then am like okay I can do this for my adolescents at work or I will implement and improve this or that in my care for my children at work as I call them. When I see these campaigns I pick some few words which can help me to at least talk to my adolescents and at times it impacts on their lives. (Counselor, KI 5)

Participants revealed that due to these campaigns, their immunity had improved, had suppressed viral load and that those adolescents who were adhering to ART were looking healthy and doing everything normally. For instance, a participant reported that

... there was an advert on TV where someone was badly off due to non-adherence to ART and another looking very healthy and going about his daily life very well just like any other person who has no HIV ... so I made up my mind to always take my medicine so as to be normal as other people around me and I think most of us here are not looking sickly or weak. (17-year old male, FGD 3)

On the contrary, some participants expressed being irritated by these HIV media campaigns. For instance, a participant commented that

... like on TV you find they show these drugs that we take and everyone is seeing them so when we are at school and maybe you misplace your tablet and the other students see it, you hear them saying that we have HIV positive students here, I always feel so bad and peaceless. (17-year old female, FGD 4)

Such sentiments were also expressed in other FGDs. For instance, another participant echoed such feelings in a verbatim:

I hate it when the message is directed to me even in front of my enemies. I love it when the messages is given to me in secret. You find the person delivering the message says it when there is an enemy seated next to you or they even send those messages on your phone when your enemy is seeing and that person always pinpoints you making you uncomfortable (15-year-old male, FGD 5)

Seemingly, HIV media campaigns elicited both externalized and internalized stigmatization tendencies among some of our study participants. A case of internalized stigma due to these campaigns can be observed in one of the FGD submissions where a participant said

Me it disturbs me a lot because you might be seated watching TV or listening to radio as a family and they put the messages/campaigns yet you know that you are the only victim so you feel bad that's what I don't like about them. There is no way the family members harass me but myself I feel touched. (15-year-old female, FGD 6)

Overall, FGD participants appreciated the influence of these campaigns on their ART adherence. Although most of the participants appreciated, trusted, liked these HIV media campaigns and would even recommend them to their friends. It is imperative to note that some participants reported that they were not comfortable with the languages in which these campaigns were communicated out. The use of English, Kiswahili, and Luganda campaigns was considered inappropriate. For instance, a participant observed that

... they are languages they use we don't understand because they usually use English or Luganda and me I don't understand them. (13-year-old male, FGD 5)

Instead, participants preferred Runyankole-Rukiga messages since this is the commonly spoken and understood language by the people of southwestern Uganda. Indeed, even key informants pointed out language barrier as one of the limitations of these campaigns,

A number of our adolescents are illiterate, yet most of these media messages are in English thus leaving them out. (Nurse, KI 2)

The study found that some of the participants would not recommend these messages to their friends for fear of being stigmatized. In fact, one participant said,

I keep the message to myself because I don't know who is sick and I hate it when someone suspects me to be positive. (16-year-old female, FGD 3)

Another participant in another FGD said,

I can't share the information. I'm the only one who is infected in the family so there is no one I can share with. I also I assume that where I get the information the friend can also get that information there. (14-year-old male, FGD 7)

However, most of the participants were free with these messages and were also ready to recommend them to their friends as one of them said,

I would like to share with the colleagues but it is not possible because most people hide their status and sometimes end up missing the information and sometimes dying. (17-year-old male, FGD 2)

Another participant commented that

Me at school there is a child and he also gets his drugs from here so when I saw him I tried to advise him to always listen to those messages. I always advise my friends to listen to them. Me I be wanting that even if I meet a person and I know that he or she is HIV positive, I always want to tell that person so that even if I die at least I know that he has remained with good health. (19-year-old male, FGD 3)

Participants gave their opinion about what they thought would make these HIV media campaigns to be more effective to them and the wide community of the adolescents living with HIV in southwestern Uganda. Their recommendations hinged around privacy and confidentiality since these would deal with stigmatization. In this regard, one of the participants commented that

I like that these messages be put in hospitals because it's the health workers that keep our medical records and we trust them a lot more than people in the village who will know our status and start discriminating us from others. (14-year-old female, FGD 4)

Another area of improvement suggested by the participants was about the frequency of messages on radio and TVs. Participants noted that the HIV media campaigns had reduced and more adverts were concentrating on COVID-19, yet HIV was still killing people. For instance, a participant commented that

Like when am watching like some TV station e.g. UBC, sometimes they spend long like a week without putting those campaigns and someone can forget if he/she sees a week go by without any message/advert so there they don't help. Therefore they should always pass those messages during program breaks so that we keep alert and informed". Respondents also observed that the posters were scattered and they needed to be spread throughout their locations. (15-year-old male, FGD 2)

This is evidenced by a verbatim from one of the participants who commented that

They should increase on the number of posters now they should start putting posters everywhere and even on radio they should put other messages more than what they have been putting. (14-year old male, FGD 5)

The study found that although these messages were highly recommendable to others and good, some participants noted that they were not age specific which in turn would embarrass viewers as expressed by one the Key Informants,

They are good to a certain extent but they don't have age specifications like they put them on TV not knowing there are some young children watching like messages about sex and yet children have a high cognitive so whatever they see or hear tends to

sink deep inside their brains so that is the problem with these campaigns. They would be good if they were targeted to a certain age like if they specified that like people of 15 and above should be the ones to watch the messages. (Counselor, KI 5)

## Mass Media Mode of Delivery Preferred by Adolescents Living with HIV

Under this section, respondents identified the different media channels that they preferred in the transmission of HIV campaigns. Majority of the respondents preferred broadcast media, which involved use of television, radio and public address drives because of their easy accessibility. For example, a respondent in one of the FGDs stated,

....On radios (e.g. radio west, Maria) because most people have radios and TVs like TV west. But radios work better. (13-year-old male, FGD 6)

And another respondent started,

.... Public address system vehicles because I want many people to know. (16-year-old male, FGD 1)

Print media was the other type of media that was identified print media but especially posters. Magazines and newspapers were also mentioned but with little emphasis. This is evidenced by one of the assertions of a participant who commented that,

Putting posters just like people put posters on houses for sale or commercial adverts, they can do the same for HIV messages so that when someone comes and reads on that poster they can get the message. (15-year old female, FGD 7)

Some of the respondents in the FGDs showed preference of social media. Social media was also mentioned by a few participants in the FGDs though even one of the key informants underscored its applicability as a channel through which HIV campaigns would be communicated out as expressed in this verbatim,

At least a certain percentage of adolescent have phones and they are usually in access of social media and they have shown much interest in message on social media than these posters we have in hospital. (Doctor, KI 4)

Also, a few other participants identified their preference as being mobile phone SMS. Their argument was premised on the assumption that they are always with their phones, and they can receive messages anytime, yet this is not always the same with print or broadcast media channels. One of the participants gave a view about that Mobile phone SMS that

SMS on phone like for people who are always on trips and they have no time for radios so an SMS can also act as a reminder to take Tabs because the person can easily see that message and be helped better than having to wait till they listen to radio or watch TV. (15-year old male, FGD 4)

In addition to their preferred media, respondents also expressed their interest in various kinds of messages they desired to be delivered through the HIV campaigns. Almost all FGD respondents preferred messages about HIV information. These messages included messages about ART adherence, side effects of ART, prevention of HIV spread, stigma and discrimination. A respondent in an FGD stated,

....Messages about taking medication and messages teaching those who are HIV positive and those that are negative to stop discriminating us and seeing us as if we are useless because we also didn't want to be positive but that's how we were born. (16-year old female, FGD 6)

Respondents also pointed out testimonies and lived experiences of successful HIV positive people in society as one of the messages they wanted to be carried out in the campaigns. For example, one respondent stated that

Messages concerning the experiences and journey of life of those people who have lived with HIV for a long time. I prefer those messages because they encourage us to also live positively like those people who have lived with the disease for long time, and they are doing very well. (18-year-old female, FGD 5)

Lastly, we found that nutrition messages were also other types of messages that our participants wanted to be part of the HIV media campaigns and these messages would involve things like balanced diet, what to eat and what not to eat while taking ART. For emphasis, one of the FGD participants stated:

Messages on feeding while taking medication (the diet to follow) because if you take the drugs without eating the drugs can make you weak. They should talk about what people are supposed to eat and what they should not eat. (14-year-old male, FGD 4)

## Discussion

Results revealed the role played by mass media campaigns in ensuring adherence to ART by adolescents living with HIV in southwestern Uganda. Our results revealed a large breadth of awareness and knowledge possessed by adolescents about mass media campaigns. This ranged from knowing the various messages that were being aired out and the channels which carried these messages. This agrees with a study that was done about HIV and/or AIDS awareness among adolescents in a South African at-risk rural community, which found that awareness and knowledge of HIV/AIDS influenced behavior change among their study participants.<sup>18</sup> We argue that due to the knowledge and awareness of our participants about HIV media campaigns, many of them enrolled for ART and adhered to the prescriptions for the therapies. In other words, these campaigns helped our participants to remember to clinically take their drugs. Note that forgetfulness was one of the factors cited by a study that explored barriers to ART adherence among adolescents and young adults living with HIV in Uganda.<sup>3</sup> We also found that due to the need to ensure adherence to ART among adolescents, the hospital adolescents' clinic was furnished with a television set, which broadcasts prerecorded campaigns (messages) that range from HIV spread, prevention, testing, ART adherence and places where HIV services would be sought from. Our results further revealed that most of the participants did not remember when they first interacted with media campaigns, thus confirming their strong knowledge and awareness of the said messages. We opine that HIV positive adolescents who are in constant knowledge of HIV media campaigns are more likely to adhere ART as compared to their counterparts with no such knowledge and awareness. This agrees with a UN report, which observed that "Knowledge is power – adolescents who regularly test for HIV are aware of their HIV status, which is critical for making informed decisions about their healthy future."<sup>19</sup>

Similarly, the study results exposed a strong influence of mass media campaigns on art adherence among HIV-positive adolescents. These campaigns acted as catalysts to ART adherence since they inspired participants to accept themselves, thus managing a number of limitations, for example rejection, self-hatred, and stigma, as well as spurring positive living. Our results are in agreement with a study done in Uganda about how exposure to mass media affects HIV testing and HIV-related knowledge among adolescents, which found that mass media awareness campaigns play a key role in promoting good sexual and reproductive health among adolescents.<sup>14</sup> Whereas these campaigns positively influenced adherence to ART among adolescents, our study participants expressed concerns about the languages these messages were frequently aired out. We found that most of the campaigns were done in languages that some participants loosely understood. We argue that language challenges in the mass media campaigns could have a negative adherence to ART among adolescents. It is not surprising that our participants suggested having campaigns in their local language. These results are in consonance with a study done in Zambia about the barriers to HIV care and adherence for young people living with HIV where language challenges were cited to be one of the reasons for adolescents' failure to enroll or dropping from ART Clinic.<sup>20</sup>

Due to availability of several communication channels, our study results showed that participants preferred broadcast channels as compared to other media. This kind of preference is not peculiar to this study for example, in a study done about sexual and reproductive health information sources preferred by out-of-school adolescents in rural southwest Uganda, where it was observed that Many participants say their most valued source of reliable information about sexual and reproductive health issues comes from radio.<sup>21</sup> We also argue that this preference was mainly because our participants were mainly comprised of school going adolescents who did not have smartphones and could therefore not have preferred social or print media, which are normally out of their range of reach and expensive. Even then, the available literature indicates that adherence to ART using phone interventions is mainly among the adult population. For instance, a systematic review revealed that 12 out of the 13 studies that involved phones as a platform for adherence were

done among adults, while just 1 was done in both adults and adolescent.<sup>22</sup> This further confirms our results that broadcast media was the most suitable platform to carry HIV campaigns among adolescents. Moreover, social media gadgets especially phones are prohibited in most schools in southwestern Uganda, thus justifying their preference for radio and TV channels which could be readily available to them in their homes and sometimes at school. Similarly, a study about internet use among Ugandan secondary school-going adolescents in Mbarara city found that over half (55%, 277) of the participants had never used the internet and their reasons were related to cost and cost, access and technical knowhow.<sup>23</sup>

Contrary to common HIV media messages that hinge around prevention, spread, testing, stigma and ART adherence, our participants preferred messages that featured successful stories of HIV positive living people sometimes referred to as peer treatment supporters. They argued that such stories would reduce stigma, build their self-esteem, spur hope, and would lead to their self-actualization as well as communicating to them that they were not the only ones in the situation. Such views agree with the results reported in a systematic review on the interventions to improve antiretroviral therapy adherence among adolescents in low- and middle-income countries. In this review, it is reported that an RCT in Uganda found a significantly higher proportion of participants receiving adherence reminders from peer treatment supporters compared to those who did not have such treatment supporters.<sup>22</sup> It is also in agreement with the Young-people, Adolescents Peer Supporter (YAPS) model, which uses peers to reach out to fellow young people living with HIV aged 10–24 years.<sup>24</sup> Its goal is to contribute to improved health outcomes and survival of adolescents and young people living with HIV. The YAPS model objectives are: to increase identification and linkage of HIV positive adolescents and young people to care, to improve retention in care and adherence to treatment, and to strengthen psychosocial care and support services for all young people living with HIV to cope better with their HIV status.<sup>24</sup> Other messages that participants preferred concerned eating habits since they argued that adherence to ART was also dependent on the type of diet they had. Note that four studies done in Zambia, Niger, Honduras, and Haiti evaluated nutrition-support interventions and three found statistically significant effects on adherence.<sup>22</sup> Such results therefore justify our participants' preference of nutritional messages on top of successful stories of HIV positive people's lived experiences.

This study has a few limitations to be noted. We conducted the study in one adolescent's clinic. However, this clinic was at a regional referral hospital, which has a large catchment area of the population. Secondly, this study adopted a cross-sectional design which limited our continuous interaction with the sample population. However, the results thereof pointed to adolescents concerns that require further research. For example, there is a need to study the factors that influence adolescents' enrollment for ART, and other factors associated with ART adherence among adolescents. The study was conducted at the time when Uganda was under lockdown due to COVID-19 pandemic, and this limited our closer and in-depth interaction with our participants because of the stringent standard operating procedures in the management of COVID-19.

## Conclusion

Our study shows that most of the participants were aware of HIV mass media campaigns and that these campaigns promoted adherence to ART among adolescents living with HIV. This is because these campaigns reminded them about the need for adherence to ART, inspired participants to accept their HIV status and fostered positive living. Indeed, participants suggested that more messages about successful stories of HIV positive living people especially adolescents feature in the media campaigns since this inculcated esteem, hope and acceptance among our participants. It is therefore recommended that health-related media campaign designers must take into consideration the nature and the unique needs of adolescents while designing and airing out the various HIV media campaigns. It is envisioned that this would contribute to catapulting adolescents' life expectancy but also propelling them to live dignified lives as adults.

## Abbreviations

AIDS, Acquired Immune Deficiency Syndrome; ART, Antiretroviral Therapy; FGD, Focus Group Discussion; HIV, Human Immunodeficiency Virus; MRRH, Mbarara Regional Referral Hospital; SMS, Short Messaging System; TV, Television.

## Data Sharing Statement

The datasets generated and/or analyzed during the current study are not publicly available due to research ethics board restrictions but are available from the corresponding author on reasonable request.

## Ethics Approval and Consent to Participate

Approval to conduct the study was obtained from the MUST Research and Ethics committee (MUST REC 10/01-20). Further permission was obtained from Uganda National Council of Science and Technology to conduct the study in Uganda (UNCST RESCLEAR/01) and permission from the Hospital Director to conduct the study at the hospital. All participants gave written consent/assent before enrolling in the study.

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## Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

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## Disclosure

The authors declare that they have no conflicts of interest.

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