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Drivers of uptake of HIV testing services among adolescent boys and young men in Lusaka, Zambia: A qualitative study

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Drivers of uptake of HIV testing services among adolescent boys and young men in Lusaka, Zambia: A qualitative study

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ABSTRACT

Objective: To determine what Adolescent Boys and Young Men (ABYM) desire in their ideal HIV testing environment.

Setting: The study collected data from three primary level care health facilities in urban locations of Lusaka.

Participants: The study enrolled a total of 30 participants for FGDs and IDIs. 3 FGDs were conducted with 24 ABYM. 6 IDIs were conducted with 2 male and 4 female health care providers (HCPs). ABYM >18 were conveniently selected from first aid training, sports, and youth-friendly sites in three locations. We purposefully selected HCP from community, facility, and district levels that work with adolescents to give insight on ABYM HIV testing.

Results: The 24 ABYM were 18-24 years old (median 21 years), single, from 11 different neighborhoods and 50% had >12 years of education. Most ABYM considered HIV testing important to maintain good health and plan their future. However, ABYM's current perceptions on how HCP would treat them in existing healthcare facilities could deter them from engaging with HIV testing services. They perceived some HCPs as judgmental, likely to compromise their confidentiality and privacy; and long waiting times, as leaving them visible and open to community stigma. Most ABYM would prefer a convenient and safe environment that allows them to access HIV-related services with minimal contact with HCPs. HCPs demonstrated awareness of how judgmental attitudes towards ABYMs and structural barriers that prevent ABYM from engaging with HIV prevention and treatment services.

Conclusions: Though aware of the benefits, ABYM disillusioned by standard counseling procedures, systemic barriers, and stigma, avoid HIV test and treat services. Innovative ways and

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spaces to increase access to HIV testing and anonymized linkage to youth-specific spaces that offer appropriate mix of non-judgmental staff and services are needed. Such a continuum could facilitate entry of ABYM into the HIV prevention and treatment cascade.

Keywords: HIV, Zambia, adolescent boys and young men, motivation.

Strengths and Limitations of the study

Strengths

- The study methodology facilitated for to collection of experiences and background information relevant to the research topic.

Limitations

- The study had no major limitation(s) in terms of the methodology.

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BACKGROUND

About 83% of adolescents infected by HIV/AIDS globally in 2013 lived in sub-Saharan Africa (SSA)[1]. Reports of the decline in HIV prevalence among adolescents and young people (15-24 years) in SSA, though encouraging, reflect the predominant decline occurring among young women who still remain the most affected by the HIV epidemic [2]. For most countries in SSA, the notable decline also masks the increase in HIV prevalence among young men [3]. In Zambia, HIV prevalence among adolescent boys and young men (ABYM) increased from 3.7% to 7.3% in urban areas and, from 2.6% to 3.6% in rural areas over a 12-year period from 2001 to 2013/ 14 [4] [5]. Early detection and linkage is vital to interrupt HIV transmission amongst young men and to ensure they are part of the Zambian effort to end the HIV epidemic by 2030.

While sub-optimal across all ages, ABYM aged 15-24 years old had the lowest HIV testing rates in SSA preventing their entry into the HIV prevention and treatment cascade [4]. A variety of reasons rooted in ABYM's unique context and stage of development limit their uptake of HIV testing services. These include being orphaned, the psychological effects of not living with biological siblings, high levels of sexual activity and experimentation, low perception of personal risk and fear of negative consequences (for example stigma), along with poverty which also heightens ABYM's vulnerability [6]. Furthermore, ABYM face barriers such as a lack of awareness of available testing services and of adolescent tailored services as well as concerns around a positive result, confidentiality, and those arising from misconceptions about HIV/AIDS [7]. In Zambia, only 42% of 15-19 years old reported ever testing for HIV with girls being almost twice as likely to have ever tested for HIV [8]. Stigma, need for parental permission, the fear of a positive test result with associated lifestyle changes, social isolation, and hopeless future,

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along with lack of awareness of associated benefits, prevented this age group from accessing HIV testing services in Zambia [9] [10].

Several in-person and technology-based interventions have been used to address some of the barriers young people face during conventional HIV testing. Among these, community-based HIV testing strategies including HIV self-testing (HIVST) followed by assisted referral and nominal incentives have proven effective for improving young adults' entry into the HIV care cascade [11,12, 13]. Similar findings among mature men in SSA suggest that other successful interventions directed at them, such as HIV education and home-based testing may also be applicable for ABYM [12, 14]. Young people are also more likely to be attracted to technology-based interventions. Gamification, motivational text messages, technology enabled choice options, and use of social media platforms, have all been shown to successfully promote HIV testing [15]. These technology-based interventions along with HIVST [13] remove the need for repeated visits [16] and mitigate attrition of men and young people [17] observed in home and community-based testing programs.

Uptake of newer technology-based approaches to HIVST delivery depends on its fit with existing HIV testing approaches, adolescent and young people's experiences, and other contextual factors [18]. We explored the barriers and facilitators to HIV testing among ABYM including their idea of an ideal testing environ as the first step in the development of a HIVST intervention using mHealth and technology [15]. These findings will be used to design suitable, opportune and bespoke HIV testing services for adolescents, especially ABYM, who rarely access facility-based HIV testing services. If found acceptable and feasible through usability and

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efficacy testing [15], these tailored services could help Zambia and the rest of SSA to improve the uptake of HIV testing services among adolescents.

METHODS

Study design

We conducted an exploratory qualitative study in order to design suitable bespoke HIV services that increase both uptake of HIV testing services and linkage to prevention and treatment services by ABYM in Zambia. Our research questions included those on HIV risk perception among ABYM and their experience with currently available HIV testing strategies and, ideal HIV testing environs, which we asked of both ABYM and healthcare providers (HCP). Our exploratory qualitative study design and questions align with the social constructionist paradigm which help understand young people's experiences, the meaning they give to these experiences and how both experiences and meaning are shaped by their socio-cultural context [19].

We chose to conduct focus group discussions (FGDs) with ABYM in order to efficiently gather a wide range of views, which is often constructed within social groups and during social interactions among young people. The research assistants (RAs) were matched for gender and while in their early 30s, still youthful. We believe the use of existing groups joined in a common purpose as well as of appropriate choice of RAs allowed for easy dialogue with the young men. The recruitment venues also probably yielded more aware, self-confident and articulate young men from different geographical and socio-economic groups, which allowed the efficient collection of rich information on perceptions, expectations and experience with HIV testing and

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care. We conducted in-depth interviews (IDIs) with HCPs to gather their personal experiences with providing HIV-related services to young people. IDIs also allowed HCPs the maximum flexibility to determine the timing and privacy settings conducive for free expression of their views including those on the limitations of their workplace. While the RAs were relatively younger, their experience with qualitative research in HIV and respectful mannerisms ensured a professional and authentic engagement.

Patient and Public Involvement

The public and patients and were not involved in the design or management of the study at any point.

Study sampling and enrolment

We recruited ABYM 18-24 years old found in first aid training centers, sports facilities and youth friendly corner in Matero and Kalingalinga, which are high-density, mixed income areas in Zambia's capital, Lusaka. HCPs involved in HIV testing and ART service delivery to ABYM at facility or community level in the Matero and Kalingalinga clinic catchment areas were recruited from their workplace.

Using convenience sampling, and with the permission of facility managers, two male RAs, approached young men identified by gatekeepers in the study locations. They verified the age of those interested to learn more about the study against their National Registration Card (NRC). Eligible ABYM were invited to a FGD at an agreed upon date, time, and location. We excluded participants below the age of 18 and above the age of 24 as well as those who were unable/unwilling to give informed consent prior to data collection due to their being a part of sports teams that were scheduled to have training sessions at the same time the FGD was

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arranged. The RAs contacted the HCPs in-person and by telephone for purposes of making and confirming appointments. When given informed consent, the RAs agreed with HCPs on a date, time and location for the discussion/interview.

Data collection

The RAs conducted three FGDs with ABYM and six IDIs with HCPs using a semi-structured guide and in their preferred language for approximately 30 and 90 minutes respectively. The FGD guide included questions on HIV testing and care, experience with HCPs and HIV-ST as well their ideal testing environs. Inspired by previous HIV and adolescent research, the IDI guides used open-ended questions to elicit more in-depth responses on the experiences of HCPs with HIV testing and care.

All data collection was carried out in private rooms and, with participants' permission, recorded on two audio-recording devices. There was no one else present other than the researchers and participants during interviews and discussions. Inaudible responses, although minimal, were documented in the transcripts. All participants were allocated a unique identifier number delinked from their name, which was used to label audio-recordings and typed transcripts. Audio recordings and transcripts were securely stored on password-protected computers. Signed informed consent forms were stored separately in a locked cabinet.

Data analysis

We analyzed the data using thematic analysis based on inductive reasoning [20]. An in-country translator transcribed the FGDs and IDIs in Microsoft Word, which the RAs exported into NVivo software version 12 (QSR International). Using inductive reasoning, HN, MF and JM conducted open coding and wrote memos to develop and define key concepts and themes

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emerging from the data. The three analysts examined the initial coding and preliminary themes to identify recurring ideas, views and contexts emerging from both sets of data. This helped focus the final analyses on key themes. Coder concordance was verified by AS, the senior qualitative researcher. Finally key themes were discussed over a three-day workshop to ascertain information saturation and design questions for co-creation activity. Below we present our findings and illustrative quotes on participants' views and experiences.

Regulatory approval and ethical considerations

The University of Zambia Biomedical Research Committee (UNZABREC) gave ethical approval (Reference Number **001-10-18**) and the National Health Research Authority (NHRA) authorized the research. The Ministry of Health and the National Sports Council gave permission to access their facilities for research purposes. This study adhered to the qualitative research review guidelines (RATS) [21].

Prior to the data collection activities, RAs gave all potential participants a consent form that clearly explained the purpose of the research, what was expected of the participant in the process of data collection and their rights as respondents. Participants were assured of confidentiality and that all reported data would be anonymized. Names and other information were only collected for administrative purposes and to establish eligibility. ABYM were told to share confidential information in private with the RAs as we could not guarantee that FGD participants would maintain confidentiality. Once the inform consent forms were read, explained, discussed, and clarified, RAs sought participants' informed consent. Participants were reimbursed 100 ZMK ($7) for their travel expenses.

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RESULTS

Three FGDs were conducted with a total of 24 men ages 18-24 years old (median age: 21) from three different locations in the two study sites and attracted ABYM from 11 different neighborhoods in Lusaka. As shown in Table 1, all respondents were single and 50% had more than 12 years of education. Six IDIs were carried out with HCPs who had 2-30 years (median: 14 years) experience working in the health sector both directly at the health facilities and with health sector cooperating partners.

Table 1. ABYM Socio Demographic data

ABYM Characteristics	Distribution in Sample
Age	
18-20	9
21-23	12
24	3
Marital status	
Single	24
Married	0
Level of Education	
Primary (1-7 years of schooling)	0
Secondary (9-12 years of schooling)	19
Tertiary (College or University)	5
Occupation	
Student (University/College)	1

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Student (Secondary School)	4
Employed (Informal)	6
Unemployed	13

1. **Facilitators of uptake of HIV testing services**

Planning for the future: ABYM thought it important to test regularly in order to plan for their future. Some ABYM affirmed that knowing how HIV was transmitted made them mindful of their individual risk. Some mentioned that apart from sex and other lifestyle choices, one could get HIV through other means like '*sharing needles'* or '*through birth from our parents'*, making it *'advisable to test so that you know your status.'* They stated that a HIV test was the only way for them to definitively know their HIV status and to plan accordingly for their good health and future prospects.

They posited that if they knew their HIV status, they would be better able to take care of themselves and sustain a good measure of personal health. They unanimously agreed that if they knew they were HIV positive, they could easily seek treatment in order to live healthy lives. If repetitively ill, an HIV test could help to rule out HIV or identify it as the underlying cause that could be addressed through antiretroviral therapy (ART).

> *"It is good to test, to know your status … where you are at a point. You have to take care of yourself because if you do not know whether you are sick or not, the sickness can go beyond your control." {ABYM, Kalingalinga}*

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They also submitted that if found to be HIV negative, they could continue to take care of themselves while acquiring more knowledge on how best they can continue to maintain a negative result. They thought that testing could provide a protective and preventative measure against diseases like HIV because it can inform choices around sexual activities, for example, couples testing:

> *"You have to know your status before you sleep with a woman because you can sometimes sleep with someone who is infected and you are not. So sometimes, before sleeping with [each other], both of you should get tested first …" {ABYM, Kalingalinga}*

Future employment prospects: Some ABYM also reported that a HIV negative status might be a prerequisite for certain jobs. Knowing their HIV status would help them determine their eligibility and motivate them to maintain their ability to meet this potential job requirement and increase their employment prospects.

> *"… Youth of nowadays have no chance of getting employment in the government when they are found sick and are HIV positive because they have to get tested once they are offered the job. For example, one cannot be recruited in the military and other institutions." {ABYM, Matero}*

These aspirational reasons led one young man to say:

> *"Yes it is important for a person to test and know their status as a young man in order to know where one stands – it is very important and can even help one to plan for their future…" {ABYM, Matero}*

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2. Barriers to uptake of HIV testing services

Fear of a positive result: Treatment expectations and inability to manage their emotions impeded HIV testing by ABYM. They anticipated being judged by peers and HCPs if they accessed HIV services and, disappointment if found HIV positive. They were also concerned about restrictive lifestyle changes that could stop them from doing things they enjoy such as taking alcohol and having sex. They avoided these feelings by shying away from HIV testing, drawing strength from their peers who advised them to shun the heath facility.

> "*Most of the time they could not like get advice from an adult. They would rather ask their friends for advice. So, whatever advice they will get from their friends that is the one they will take" {ABYM, Kalingalinga}*

HCPs agreed that ABYM would rather spend their morning drinking alcohol and smoking than seeking HIV testing services. Some HCPs thought that some ABYM were in a state of depression usually because they bottled feelings rather than talking openly, being naturally secretive. If depressed, ABYM could turn to alcohol and other substances to cope with their feelings. Once intoxicated, they were even less motivated to go to the clinic for HIV testing for fear of being reprimanded by the HCPs. They thought that this sequence of events perpetuated the cycle of depression, substance use, risk-taking, and lack of self-care among most ABYM.

Some ABYM mentioned that they were not very comfortable going back to the health facility because of the way the health care workers communicate the need to test after the window period. They stated that HCPs communicate in a manner that instills fear even when they have a

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negative HIV test result, which was one of the reasons that ABYM did not want to return to the health facility for an HIV test.

> *"... They [should] explain it properly for you [and not] be scaring you after you test by saying things like 'you should come back after 6 months because maybe you have it, but it just isn't showing yet ..." {ABYM, Kalingalinga}*

Some ABYM mentioned that they are frightened to go for an HIV test because they had watched people close to them get diagnosed with the virus, become sick and eventually die, leaving them traumatized and fearful of dying if diagnosed HIV positive. As such, they would rather not test for HIV.

Structural barriers: According to HCP, most ABYM in high-density areas such as Matero and Kamwala begin to engage in economic activities at a young age. Hence, they usually grappled with the decisions of choosing between spending time at the health facility or finding work to earn some money. They thought that overcrowded facilities that translated into long waits at the health facility made ABYM feel like they had to choose between income-generation and care seeking.

> *"... There are a lot of long queues, so boys cannot come and stand in the queue for a long time when they are supposed to do a lot of things [look for a daily wage] ..." {HCP, Chipata Level 1}*

Additionally, the HCPs mentioned that ABYM found the processes of HIV testing (needle prick), counseling and diagnosis arduous:

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"...Most of them do not like to be pricked by the small needle, so they don't like the process at all. Even the process of coming here, counselling, taking time to wait for the results from the lab, they don't want that..." {HCP, Chipata level 1}

The lack of dedicated private spaces and being served by older people only added to the ordeal. ABYM said they were usually not very comfortable being served by older rather than youthful staff, which prevented them from going to the health facility for HIV testing services. HCPs acknowledged that the lack of dedicated infrastructure and staff to attend to ABYM created a barrier to adolescent HIV testing at the health facility. They thought that ABYM desired a testing environment where they can be free to go and access an HIV test from people their age, at any time of their convenience and for any reasons without reservation or feeling at risk of being judged while or after having gone to access an HIV test.

"What I have observed with the adolescents when they come they would want a space where.... its user friendly, where they find people of the same age group to discuss freely..." {HCP, Kamwala}

Lack of tailored testing services

HCPs, both facility and non-facility based, felt that there is a low uptake of HIV testing particularly among ABYM as most of the interventions have been targeted at young women rather than young men.

"When you look at the set up of most health centers you have pediatric services where you have the under-fives, you have MCH services where the women go, then you have the general population which usually

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caters for adults. So there is no specific service tailored for adolescent men …" {Professional HCP}

They felt that ABYM require testing services that are easily accessible and do not demand a lot of their time. As ABYM are at an exploratory age, experimenting with a lot of different activities, HCP thought that they usually feel that spending a lot of time in health facilities accessing services like HIV testing was a huge ask.

"…like xxxx clinic, there are a lot of long queues. So boys cannot stand it - To come and stand in the queue a for long time when they are supposed to do a lot of things …" {HCP Chipata}

The HCPs felt that services should be tailored to provide ABYM with their desired testing environment, speed, and experience along with assurance of confidentiality and protection from the stigma that may come from accessing an HIV test as a young man. They felt that such tailored services would help in improving uptake of HIV testing both at health facilities and in the community among ABYM.

"They avoid coming to the facility. Maybe it could be, they don't want to stand in the queues because they don't want to be seen. [For others to know] that they have come to the facility. Or sometimes, they are not free to discuss with anyone about their complaints." {HCP Kamwala}

Most of the ABYM were aware of innovations like the HIVST and were comfortable with it as being convenient and easy to use in the testing process. They felt that it was an ideal alternative testing method because it took away the hassle of waiting for long hours to get an HIV test.

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ABYM mentioned that they require tailored services that can move them to want to access an HIV testing service where they are available.

> *"Nowadays for us youth, you need something that will be attracting youth to come for testing. When you go for VCT testing, the one who is in charge makes you feel like you are already HIV positive and he/she assumes once you know you are HIV positive you will commit suicide and that is a negative approach." {ABYM Kalingalinga}*

ABYM desire these tailored services to be in locations that allow them to be able to freely gain access at times that are convenient to them with no fear or judgment or stigma from people in their environment.

> *"What would encourage them is to give services to people in places that we are mostly found other than just the hospital like football grounds and bars ..." {ABYM Kalingalinga}*

ABYM desire tailored services that can protect them from stigma and avail them convenience in the testing environment, which would help them in having easy access to HIV testing and test more freely whenever they may require an HIV test.

DISCUSSION

ABYM thought it is important for them to test for HIV in order to plan ahead and develop coping strategies. However, in the present, they were emotionally ill equipped to manage their treatment expectancies and gave in to peer pressure to avoid healthcare facilities. Hence, they desired HIV

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testing services that accorded them privacy, confidentiality, and convenience with minimal contact with HCPs. They sought an environment that allowed them to have access to information and HIV prevention products without the possibility of judgment from their service providers. In our study, ABYM and HCPs unanimously felt that interventions tailored for male adolescents would help to reduce stigma and reduce the time spent in a health care facility.

ABYM were more concerned about their future health and wealth, possibly driven by gender norms that expect them to work, be busy, and experiment with substance use and sex. These notions of masculinity may make them less open to talking about feelings/events and less able to cope with HIV, HIV testing and HIV results as reported in a scoping review detailing how masculine norms could prevent men in SSA from accessing HIV testing [22]. However, this very fear of losing their image as productive, provider, and virile and strong, could also motivate those who believed that knowing their HIV status can help them to take actions which can restore their health and allow them to fulfil their societal roles. Our findings lend themselves to the observation that men are interested in health and can be part of the efforts to end the HIV epidemic if health systems adapt to their needs and "meet men where they are " [23]. Making communities less "structurally gendered" and including men over 35 years old [23] could motivate ABYM to follow the footsteps of positive role models [24,25].

Attracting ABYM to facilities will take other structural and trust-building changes. Long wait times, loss of privacy, social exposure, and long processes possibly along with lack of adequate information and counseling around HIV-related death among family members deterred ABYM in our study from testing for HIV. Such conditions have been known to cause psychological

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stress and distrust of the health care system [26,27]. The ability of HCPs to give ABYM correct and understandable information as well as provide support, empathy, reassurance, and warmth can positively influence ABYMs' cognitive and emotional reactions and ultimately gain their trust [26].

The study participants described community based HIVST service as ideal for easily accessing HIV testing services. This aligns with a study on breaking of barriers in testing among men and adolescents conducted in Malawi, Zambia, and Zimbabwe, which demonstrated that distributing self-test kits increased HIV testing among men, particularly when distributed in community settings [13]. The study found that nearly half of the 628,708 recipients of HIVST kits comprised of men and, approximately 40% were young people ages 16-24 years old. In Malawi and Zimbabwe, men preferred non- facility-based testing and accessed nearly half of the HIVST kits available at community centers and mobile outreach. The Zambian Ministry of Health (MoH) in 2017 made provision for self-testing for persons 16 years and above [28], creating the platform for innovative community based HIVST delivery systems, thereby expanding the geographic reach and uptake of HIV testing by offering both convenience and privacy for young men [5].

Innovative ways of delivering HIVST kits that remove interaction with the health facility and staff as well as guarantee privacy, confidentiality, convenience, and prompt results could further encourage ABYM to self-test. An intervention trial demonstrated that the use of redeemable vouchers to collect HIVST kits from private pharmacies increased HIV testing and linkage to care services among key populations, albeit in the high-income context of the USA [29]. In Africa, Asia, South America, and the Caribbean regions, the use of vending machines to distribute contraceptives and HIV test kits have found wide appeal among key populations [30].

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When placed in informal locations such as shopping malls, bars, schools, hotels, petrol stations, theme parks, salons and college campuses, these vending machines were usually emptied in short periods of time and constantly required restocking. Vending machines may serve as a visual prompt and provide immediate access to sexual and reproductive health products for people who are mobile, feel stigmatized, or otherwise inconvenienced to access them from pharmacies and health facilities [14,30].

While innovative interventions have the capacity of delivering a desired testing experience, ABYM may need support in first use. Not unlike adult men, they may require education on HIV, HIVST kits and new innovations. Also, middle adolescent and young adults may struggle with heightened emotions and adjustment issues during this period of identity development [31] and may not be able to cope with a positive HIV result. Early social support and community-based counseling may be critical to confirmatory HIV testing and ART initiation. Access to consultation and advice through initiatives like 24/7 toll free phone lines may help them openly inquire about and express concerns [32]. This counseling needs to be adolescent-specific, addressing shame, concerns about the future, as well as issues of disclosure and leveraging social support. Other innovations that may help ABYM successfully navigate technology, HIVST processes, HIV positive results and linkage to care include demonstration videos and supervision at first use [15]. Regardless, the design of such educational material needs to be specific to age and risk groups [14] in order to hold their attention and motivate them to access models of HIV testing services most suitable for their unique circumstances.

Ultimately, HIVST should lead to entry into the prevention and treatment cascade among young men. In Zambia, we found that adolescent girls and young women linked to care within 2-4 weeks of self-testing HIV positive, but some preferred to discuss their results and treatment

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options with study staff as well as to be escorted to ART initiation facilities (unpublished data). Home-based ART initiation [11] and community-based implementation of Universal Test and Treat among HIV positive ABYM may also increase linkage to care [14]. Such HIV testing and linkage approaches could lead to more tailored, efficient, and effective approaches, for e.g., index testing [33].

We chose to gather information from a small sample of ABYM and HCPs in urban settings in order to lead into co-design workshops based on the insights they provide. By selecting ABYM from sites where they congregate, we captured a mix of locations and socio-economic strata in Lusaka, Zambia, making our data applicable for intervention design to serve ABYM in different urban settings. Our choice of FGD also allowed capture of group dynamics for knowledge creation and decision-making. However, such an approach does exclude ABYM living in towns and in rural settings from participation in co-creation and evaluation of any resulting innovation. Additionally, ABYM in congregate settings maybe more focused and aspirational than those who are more socially isolated and not involved in sports or other self-improvement activities. Nonetheless, our finding of anxieties around HIV testing in this potentially more emancipated group suggests that discrete options for HIVST along with facilitated linkage to care may be of service to ABYM in different settings in Lusaka, Zambia, and beyond.

Conclusion

The challenge of adolescents testing particularly among ABYM remains prominent in the fight against HIV in Zambia. Stigma, lack of privacy and confidentiality, inadequate infrastructure, and unsuitable health staff in health facilities to attend to adolescents are barriers that locally affect ABYM uptake of facility based HIV testing. The implementation of adolescent tailored interventions that increase HIV testing rates among ABYM is essential to the attainment of the

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UNAIDS 95-95-95 targets by 2030. These interventions need to meet the needs of ABYM who desire a stigma free testing environment and the availability of services in community and youth appropriate areas. To be most effective, these innovations should encompass the entire spectrum from testing to linkage to care.

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List of abbreviations

ABYM	Adolescent Boys and Young Men
ART	Antiretroviral Therapy
CIDRZ	Center for Infectious Disease Research in Zambia
FGD	Focus Group Discussion
HCP	Health Care Provider
HIV	Human Immunodeficiency Virus
HIVST	Human Immunodeficiency Virus Self Test
IDI	In-depth Interview
NHRA	National Health Research Authority
NRC	National Registration Card
RA	Research Assistant
SSA	Sub-Saharan Africa
UNAIDS	Joint United Nations Program on HIV/AIDS
UNZABREC	The University of Zambia Biomedical Research Ethics Committee
USA	The United States of America
VCT	Voluntary Counseling and Testing

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Author Contributions

AS, CBM and JV came up with the idea and design of the study. AS and JV supervised the data collection which was done by HN and MF. Data analysis was conducted by AS, HN, MF and JV after which, AS, HN and JV actively drafted the manuscript while CBM and MF helped with the review and edits of the draft manuscript from draft until the final version was concluded. All authors read and approved the final version of the manuscript.

Statement of Competing Interests

There are no competing interests from all authors of the manuscript.

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Data sharing statement

For this study all participant data was anonymised to protect the participants' privacy and confidentiality in accordance with the consent signed prior to taking part in the study. The data that is shared in the results of this manuscript is mainly from responses from the study participants and there is no additional information that is available from the study besides what has been shared in the results section of this manuscript. Study related documents like the study protocol can be made available when required.

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Drivers of uptake of HIV testing services, a snapshot of barriers and facilitators among adolescent boys and young men in Lusaka: A qualitative study

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ABSTRACT

Background: Striking gender and rural-urban disparities highlight the need to re-design Human Immunodeficiency Virus (HIV) services to improve HIV testing and linkage by adolescent boys and young men (ABYM) in sub-Saharan African cities.

Purpose: We sought to understand drivers of HIV testing among ABYM living in urban Lusaka in order to design a targeted intervention that may increase their entry into the HIV prevention and treatment cascade.

Methods: In May and June 2019, two male moderators conducted three focus group discussions (FGDs) lasting 1.25 hours with 7-9ABYM per group and, six in-depth interviews (IDIs) with health care providers (HCPs) working with adolescents. ABYM were conveniently selected from first aid training, sports, and youth-friendly sites in three settlement areas. We purposefully selected HCP from community, facility, and district levels. Thematic analyses using inductive reasoning was applied.

Results: The 24 ABYM were 18-24 years old (median 21 years), single, from 11 different neighborhoods and 79% had 9-12 years of education. Facilitators of HIV testing uptake included the importance ABYM placed on good health and planning their future in order to fulfill their masculine identity and societal roles. Barriers included peer norms, life-long treatment along with anticipated changes to sexual life and alcohol use, fear of results, and judgment and disappointment among HCP. HCPs agreed that masculine roles ("many things to do") and arduous clinic processes deterred ABYM from accessing testing services. They suggested that ABYM were prone to depression which both caused and resulted from behavioral issues such as alcohol use and risk-taking, which prevented uptake of HIV testing services. Both parties agreed

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that ABYM needed services specifically designed for them and that offered convenient, private, swift, and non-judgmental services.

Conclusions: ABYM disillusioned by standard counseling procedures, systemic barriers, and stigma, avoid HIV test and treat services. Innovative ways and youth-specific spaces are needed to increase access to non-judgmental services that facilitate entry into the HIV prevention and treatment cascade in this population.

Keywords: HIV, Zambia, adolescent boys and young men, motivation.

Strengths and Limitations of the Study

- We collected data from a diverse group of ABYM from different social, cultural and economic contexts, which gave rise to healthy discussion of differing perspectives and experiences of HIV testing uptake in this population.
- The study engaged HCWs based in both health facility and community settings which revealed their observation of and explanation for low HIV testing uptake among ABYM.
- The ABYM and HCWs sample was small and drawn from urban settings. As such, findings may not be relevant to all settings where ABYM are found. However, this qualitative study provides a good snapshot on the study subject with implications for innovations that can increase access to HIV services among ABYM.

BACKGROUND

About 83% of adolescents infected by Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome (HIV/AIDS) globally in 2013 lived in sub-Saharan Africa (SSA) [1].

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Reports of the decline in HIV prevalence among adolescents and young people (15-24 years) in SSA, though encouraging, mask increased HIV prevalence among young men. In Zambia, HIV prevalence among adolescent boys and young men (ABYM) increased from 3.7% to 7.3% in urban areas and, from 2.6% to 3.6% in rural areas from 2001 to 2013/14 [2] [3]. While sub-optimal across all ages, ABYM aged 15-24 years old had the lowest HIV testing rates in SSA [2]. In Zambia, only 42% of 15-19 years old reported ever testing for HIV with ABYM half as likely to have ever tested for HIV [4]. Early detection and linkage are vital to interrupt HIV transmission amongst young men and to ensure they are part of the Zambian effort to end the HIV epidemic by 2030.

Barriers young people face during conventional HIV testing are well documented [5] [6] [7] [8]. In-person, technology-based interventions such as community-based strategies including HIV self-testing (HIVST), assisted referral, and nominal incentives [9] [10] [11] have shown success in mitigating these barriers, with some promise for HIV education and home-based testing [10] [12]. Technology-based interventions along with HIVST [11] remove the need for repeated visits [13] and mitigate attrition of men and young people [14] from testing programs. Among young people technology-based interventions including gamification, motivational text messages, technology enabled choice options, and use of social media platforms, successfully promote HIV testing [15]. However, the preferences for HIV testing technology and environs remains understudied in Zambia.

Uptake of newer technology-based approaches depend on their fit with existing HIV testing

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approaches, adolescent and young people's experiences, and other contextual factors [16]. We explored the barriers and facilitators to HIV testing among ABYM as the first step of engaging them in the development of a HIV testing interventions [15]. Our research questions included those on HIV risk perception among ABYM and their experience with currently available HIV testing strategies and, ideal HIV testing environs, which we asked of both ABYM and healthcare providers (HCP).

METHODS

Study design

We conducted an exploratory qualitative study in order to design suitable HIV services that increase both uptake of HIV and linkage services by ABYM in Zambia. Our study design and questions draw on the social constructionist paradigm to understand young people's experiences, the meaning they give to these experiences and how both experiences and meaning are shaped by their socio-cultural context [17].

We decided to gather information from a small sample of ABYM and HCPs in urban settings due to our specific purpose: to co-design interventions to improve HIV testing based on emerging insights. We conducted focus group discussions (FGDs) with ABYM to efficiently gather a wide range of views, which is often constructed within social groups and during social interactions among young people. The use of FGDs allowed the capture of group dynamics, facilitating knowledge creation and decision-making processes. We believe that the use of existing groups joined in a common purpose and appropriate choice of Research Assistants (RAs) matched by sex (male) and youthfulness (early 30s) allowed for easy dialogue with the

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young men. Recruitment occurred in sports, first aid training and youth-friendly venues, which probably yielded more aware, self-confident and articulate young men from different geographical and socio-economic groups. This diversity allowed the efficient collection of rich information on perceptions, expectations and experience with HIV testing and care.

We conducted in-depth interviews (IDIs) with HCPs to gather their personal experiences with providing HIV-related services to young people. IDIs allowed HCPs the maximum flexibility to determine time and privacy settings conducive to free expression including on workplace limitations. While the RAs were relatively younger, their qualitative research experience and respectful mannerisms ensured a professional and authentic engagement.

Patient and public involvement

The public and patients were never involved in study design or management.

Study sites

We conducted our study in Matero and Kalingalinga, which are high-density, mixed income townships in Zambia's capital, Lusaka, situated approximately 6km North West and 13km East of city center respectively. HCPs at the government run Kalingalinga and Matero clinics and ABYM living or accessing First Aid Training, Sport Facilities and youth friendly corners in the clinics' catchment area were our population of interest. Matero clinic serves a population of 94,209 people living within its 6.9km^2 clinic catchment area and Kalingalinga clinic serves a population of 74,019 people living within 10.4km^2 [18]. Their youth friendly corners are private, dedicated spaces located within the

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clinic where peers volunteer to provide sexual and reproductive health services, products, and information to adolescents in their community catchment and nearby areas [19]. Community halls serve many functions including as first training centers for non-governmental organizations while sports facilities are located within the community setting and easily accessed ABYM, who usually congregate there to play football.

Sampling strategy

Using convenience sampling, and with the permission of facility managers, RAs approached young men identified by facility managers as frequenting the study locations and potentially meeting eligibility criteria (age 18-24 years old). The RAs verified the age of those interested in the study against their National Registration Card (NRC). Eligible ABYM were invited to a FGD at an agreed upon date, time, and location. We excluded participants below the age of 18 and above the age of 24 as well as those who were unable/unwilling to give informed consent prior to data collection.

The RAs sought permission from the Province, District, and facility offices to enter health facilities. With the help of the facility-in-charge, they informed staff regarding the study and invited those involved in HIV testing and ART service delivery to ABYM at facility or community level and interested to participate to register with the facility-in-charge. The RAs contacted the HCPs in-person and by telephone for purposes of making and confirming appointments. When given informed consent, the RAs agreed with HCPs on a date, time, and location for the discussion/interview.

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Data collection

The RAs conducted three FGDs with ABYM and six IDIs with HCPs using a semi-structured guide and in their preferred language for approximately 90 and 30 minutes respectively. The FGD guide included questions on HIV testing and care, experience with HCPs and HIVST as well their ideal testing environs (**Supplement 1**). Inspired by previous HIV and adolescent research, the IDI guides used open-ended questions to elicit more in-depth responses on the experiences of HCPs with HIV testing and care (**Supplement 2**).

All data collection was conducted in private rooms and, with participants' permission, recorded on two audio-recording devices. There was no one else present other than the researchers and participants during interviews and discussions.

Data management and analysis

All participants were allocated a unique identifier number delinked from their name, which was used to label audio-recordings and typed transcripts. Audio recordings and transcripts were securely stored on password-protected computers. Inaudible responses, although minimal, were documented in the transcripts. Signed informed consent forms were stored separately in a locked cabinet.

We analyzed the data using thematic analysis based on inductive reasoning [20]. An in-country translator transcribed the FGDs and IDIs directly into English in Microsoft Word, which the RAs exported into NVivo software version 12 (QSR International). Using inductive reasoning, HN, MF and JM conducted open coding and wrote memos to define key concepts and themes. The three analysts examined the initial coding and preliminary themes to identify recurring ideas,

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views and contexts emerging from both datasets. This helped focus the final analyses on key themes, which were then categorized into facilitators and barriers to HIV testing. AS verified coder concordance. Finally, the team discussed key themes over a three-day workshop to ascertain information saturation and design questions for co-creation activities.

Regulatory approval and ethical considerations

The University of Zambia Biomedical Research Committee (UNZABREC) gave ethical approval (Reference Number **001-10-18**) and the National Health Research Authority (NHRA) authorized the research. The Ministry of Health and the National Sports Council gave permission to access their facilities for research purposes. This study adhered to the qualitative research review guidelines (RATS) [21] and complies with the Standards for Reporting Qualitative Research SRQR (**Supplement 3**).

Prior to data collection, RAs gave all potential participants the information sheet which clearly explained purpose, procedures and participant rights. Participants were assured of confidentiality and anonymized data. Identifying information was only collected for administrative purposes and to establish eligibility. FGD participants were advised to share confidential information in private as RAs could not guarantee shared confidentiality. Once the information sheet was read, explained, discussed, and clarified, RAs sought participants' informed consent. ABYM were reimbursed 100 ZMK (approximately $7) for their travel expenses.

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RESULTS

We had a total of 30 respondents, 24 ABYM and 6 HCPs. Three FGDs were conducted with a total of 24 men from 11 different neighborhoods in Lusaka. All ABYM were 18-24 years old (median age: 21), unmarried, and 79% had completed 9-12 years of education (See **Table 1)**. Six (6) IDIs were carried out with HCPs who had 2-30 years (median: 14 years) experience working in the health sector both directly at the health facilities and with health sector cooperating partners.

Table 1. Socio-demographic data (ABYM, N=24)

ABYM Characteristics	**n**
Age	
18-20	9
21-23	12
24	3
Marital Status	
Single	24
Level of Education	
Secondary	19
Tertiary	5
Occupation	
Student (College/University)	1
Student (Secondary)	4
Employed (informal)	6
Unemployed	13

Below we present the main themes emerging under facilitators and barriers to HIV testing services along with illustrative quotes.

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1. Facilitators of uptake of HIV testing services

Facilitators to uptake of HIV testing included the importance ABYM placed on planning for their future with regards to their health and securing employment as below.

Planning for the future: ABYM thought it important to test regularly to plan for their future. Some ABYM affirmed that knowledge about HIV transmission increased their perceived risk. Some mentioned that HIV could be transmitted through means like '*sharing needles'* or '*through birth from our parents'*, making it *'advisable to test so that you know your status.'* They stated that a HIV test was the only way for them to definitively know their HIV status and to accordingly sustain personal health and plan for future prospects. If repetitively ill, an HIV test could help them rule out HIV or confirm the need for antiretroviral therapy (ART) which they unanimously agreed they could easily seek.

> *"It is good to test, to know your status ... where you are at a point. You have to take care of yourself because if you do not know whether you are sick or not, the sickness can go beyond your control." {ABYM, Kalingalinga}*

If found HIV negative, ABYM said they would continue to take care of themselves and acquire more knowledge on HIV prevention. They thought that testing could further provide a protective measure against diseases like HIV by informing choices around sexual activities, for example, by couples testing:

> *"You have to know your status before you sleep with a woman because you can sometimes sleep with someone who is infected and you are not.*

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So sometimes, before sleeping with [each other], both of you should get tested first …" {ABYM, Kalingalinga}

Future employment prospects: Some ABYM reported that a HIV negative status as a prerequisite for certain jobs. Thus, knowing their HIV status would help them determine their eligibility and motivate them to meet this potential job requirement and increase their employment prospects.

"… Youth of nowadays have no chance of getting employment in the government when they are found sick and are HIV positive because they have to get tested once they are offered the job. For example, one cannot be recruited in the military and other institutions." {ABYM, Matero}

These aspirational reasons led one young man to say:

"Yes, it is important for a person to test and know their status as a young man in order to know where one stands – it is very important and can even help one to plan for their future…" {ABYM, Matero}

2. **Barriers to uptake of HIV testing services**

Barriers to HIV test uptake included psychosocial factors such as peer norms, fear of life-long treatment, lifestyle change, and of results. Health facility factors included those that left them open to HCP judgement and community stigma while structural factors such as poverty and non-differentiated services impeded access to care.

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Fear of a positive result: Treatment expectations and inability to manage their emotions impeded HIV testing by ABYM, who anticipated peers and HCP judgement for accessing HIV services and, disappointment if found HIV positive. They were also concerned about restrictive lifestyle changes that could stop them from doing things they enjoy such as taking alcohol and having sex. They avoided these feelings by shying away from HIV testing, drawing strength from their peers who advised them to shun the heath facility.

> "*Most of the time they could not like get advice from an adult. They would rather ask their friends for advice. So, whatever advice they will get from their friends, that is the one they will take." {ABYM, Kalingalinga}*

HCPs agreed that ABYM would rather spend their morning drinking alcohol and smoking than seeking HIV testing services. Some HCPs thought that some ABYM may have these habits due to depression arising from bottled feelings and being naturally secretive. Once intoxicated, their motivation to test for HIV decreased further, fearing HCP reprimand. HCPs thought that this sequence of events perpetuated the cycle of depression, substance use, risk-taking, and lack of self-care among some ABYM.

Some ABYM expressed discomfort about returning to health facilities because HCP communicate the need to test after the window period in a manner that instills fear.

> *"... They [should] explain it properly for you [and not] be scaring you after you test by saying things like 'you should come back after 6 months because maybe you have it, but it just isn't showing yet' ..." {ABYM, Kalingalinga}*

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Some ABYM mentioned that they are frightened to test for HIV because they had lost people close to them die after a HIV diagnosis, leaving them traumatized and fearful of dying if diagnosed HIV positive. As such, they would rather not test for HIV.

Structural barriers: According to HCP, most ABYM in high-density areas such as Matero and Kamwala begin to engage in economic activities when young forcing them to choose between income-generation and care seeking at overcrowded facilities with long waiting times. They felt that as ABYM are at an exploratory age, experimenting with a lot of different activities, they disliked spending time in queues.

> *"... There are a lot of long queues, so boys cannot come and stand in the queue for a long time when they are supposed to do a lot of things ..."*
> *{HCP, Chipata Level 1}*

Additionally, the HCPs mentioned that ABYM found the processes of HIV testing (needle prick), counseling and diagnosis arduous:

> *"... Most of them do not like to be pricked by the small needle, so they don't like the process at all. Even the process of coming here, counselling, taking time to wait for the results from the lab, they don't want that ..."*
> *{HCP, Chipata level 1}*

The lack of dedicated private spaces and being served by older people only added to the ordeal. ABYM felt uncomfortable being served by older rather than youthful staff when testing for HIV at health facilities. HCPs acknowledged that the lack of dedicated infrastructure and staff created a barrier to ABYM HIV testing at the health facility, who preferred accessing an HIV test from

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people their age, at their convenience, and for any reasons, without reservation and feeling at risk of being judged.

> *"What I have observed with the adolescents, when they come, they would want a space where .... its user friendly, where they find people of the same age group to discuss freely ..." {HCP, Kamwala}*

Lack of tailored testing services

HCPs, both facility and non-facility based, attributed low uptake of HIV testing among ABYM to interventions targeting young women rather than young men.

> *"When you look at the set-up of most health centers you have pediatric services where you have the under-fives, you have MCH services where the women go, then you have the general population which usually caters for adults. So, there is no specific service tailored for adolescent men ..." {Professional HCP}*

Both HCPs and ABYM felt that services should be tailored to provide ABYM with their desired testing environment, speed, and experience along with assurance of confidentiality and protection from the stigma that may come from accessing an HIV test as a young man. They felt that such tailored services would help in improving uptake of HIV testing both at health facilities and in the community among ABYM.

> *"They avoid coming to the facility. Maybe it could be, they don't want to stand in the queues because they don't want to be seen. [For others to know] that they have come to the facility. Or sometimes, they are not free to discuss with anyone about their complaints." {HCP Kamwala}*

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> *"What would encourage them is to give services to people in places that we are mostly found other than just the hospital like football grounds and bars ..." {ABYM Kalingalinga}*

ABYM mentioned that they require tailored services that can move them to want to access available HIV testing service.

> *"Nowadays for us youth, you need something that will be attracting youth to come for testing. When you go for ... testing, the one who is in charge makes you feel like you are already HIV positive, and he/she assumes once you know you are HIV positive you will commit suicide and that is a negative approach." {ABYM Kalingalinga}*

DISCUSSION

Overall, ABYM thought it important to test for HIV in order to plan ahead and develop coping strategies. However, in the present, they were emotionally ill equipped to manage their treatment expectancies and gave in to peer pressure to avoid healthcare facilities. Hence, ABYM desired HIV testing services that accorded them privacy, confidentiality, and convenience with minimal HCP contact. They sought an environment that allowed them to have access to information and HIV prevention products without being judged. In our study, ABYM and HCPs unanimously felt that community-based interventions tailored for male adolescents would help to reduce stigma and waiting time. Thus, the study highlights the need for alternative approaches to improve access to inclusive services.

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ABYM were more concerned about their future health and wealth, possibly driven by gender norms that expect them to work, be busy, and experiment with substance use and sexual activities. These notions of masculinity may make them less open to talking about feelings and events and less able to cope with HIV, HIV testing and HIV results as reported by HCPs and ABYM in our study. This view is corroborated by a scoping review detailing how masculine norms could prevent men in SSA from accessing HIV testing [22]. However, our findings suggest that this very fear of losing their image as productive, provider, and virile and strong, could also motivate ABYM who believed that knowing their HIV status can help them to take actions which can restore their health and allow them to fulfill their societal roles. Our findings lend themselves to the observation that men are interested in health and can be part of the efforts to end the HIV epidemic if health systems adapt to their needs and "meet men where they are " [23]; in our study, this includes providing HIV counseling, HIV testing convenience at locations easily accessible to ABYM and easier access to sexual reproductive health products. Making communities less "structurally gendered," for example, by providing HIV testing and counseling services in settings convenient to target population such as testing from homes and having age targeted outreach activities focused on HIV prevention and treatment [24] and including men over 35 years old [23] could motivate ABYM to follow the footsteps of positive role models [25] [26].

Attracting ABYM to facilities will take other structural and trust-building changes. Long wait times, loss of privacy, social exposure, and long processes possibly along with lack of adequate information and counseling around HIV-related death among family members deterred ABYM

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in our study from testing for HIV. Such conditions have been known to cause psychological stress and distrust of the health care system [27] [28]. The ability of HCPs to give ABYM correct and understandable information as well as provide support, empathy, reassurance, and warmth can positively influence ABYMs' cognitive and emotional reactions and ultimately gain their trust [27].

Providing community-based HIV testing services in ways that guarantee privacy, confidentiality, convenience, and prompt results, without interaction with the health facility and staff, through innovations such as HIVST have proven effective for improving young adults' entry into the HIV care cascade [3][9][10][11]. Use of redeemable vouchers to collect HIVST kits from private pharmacies [29] and vending machines to distribute HIV test kits may also increase access [30] along with demonstration videos and supervision at first use [15]. mHealth interventions could address many of the barriers described by facilitating convenient access to testing and prevention services. These innovations require linkage to HIV-related counseling which is adolescent-specific and which addresses shame, concerns about the future, and issues of disclosure and leveraging social support. Regardless, the design of such educational material needs to be specific to age and risk groups [12] to hold their attention and motivate them to access models of HIV testing services most suitable for their unique circumstances.

Our study has some limitations. By focusing on ABYM in urban settings, we excluded ABYM living in towns and in rural settings from participation in co-creation and evaluation of any resulting innovation. Additionally, ABYM in congregate settings may have important

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characteristics, such as being more focused and aspirational, as well as pursuing sports or other self-improvement activities, which shape their perspectives and priorities in relation to HIV testing services. More socially isolated ABYM and those living in towns and rural settings likely have different concerns and preferences. Their voices and experiences should be considered in the design of interventions to ensure inclusivity and effectiveness. These limitations restrict the application of our findings to a broader population of ABYM. Despite these limitations, our findings highlight anxieties around HIV testing among ABYM, even within this potentially more emancipated group. This suggests that discrete options for HIVST along with facilitated linkage to care may be of service to ABYM in different settings in Lusaka, Zambia.

Conclusion

The challenge of adolescents testing particularly among ABYM remains prominent in the fight against HIV in Zambia. Interventions to increase HIV testing rates among ABYM must meet their desire for a stigma free testing environment, men-specific services in community and youth appropriate areas, and age-matched counselors. More research is needed on strategies to address the fear of losing masculinity and societal roles associated with HIV testing while still motivating ABYM to know their HIV status; what young men would consider private and convenient delivery systems; and preferences for linkage to care for ABYM with a reactive HIVST result. Discrete choice experiments (DCEs) [31]and Trials of Improved Practice (TIPS) can further help delineate how to tailor HIVST initiatives to the age and risk-groups among ABYM to increase their engagement with testing services.

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List of abbreviations

ABYM	Adolescent Boys and Young Men
ART	Antiretroviral Therapy
CIDRZ	Center for Infectious Disease Research in Zambia
DCE	Discrete choice experiments
FGD	Focus Group Discussion
HCP	Health Care Provider
HIV	Human Immunodeficiency Virus
HIV/AIDS	Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome
HIVST	Human Immunodeficiency Virus Self-Test
IDI	In-depth Interview
NHRA	National Health Research Authority
NRC	National Registration Card
RA	Research Assistant
SRQR	Standards for Reporting Qualitative Research
SSA	Sub-Saharan Africa
TIPS	Trials of Improved Practice
UNZABREC	University of Zambia Biomedical Research Ethics Committee

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Contributorship Statement

AS, CB and JV conceived the study topic and wrote the study proposal for execution of the study. Planning, study design and location for this study was done by AS, CB and JV. The conduct of the study was done by AS who supervised and guided HN and MF in data collection.

AS, HN, MF and JV conducted data analysis and reporting of the collected data. The interpretation of findings was done by AS, HN, MF and JV. The writing of the manuscript was done by HN and AS while review was done by AS, CB, JV ad MF for both abstract and manuscript. The content guarantor for this work is AS.

Competing Interests

All authors have no competing interests

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Data Sharing Statement

Data are available upon reasonable request.

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Focus Group Discussion Guide for HIVST_VM

Welcome Remarks:

- Thank you for agreeing to be part of the interview
- We will be asking you questions around your:
- Experiences engaging in HIV testing, Perceptions and acceptability of using HIVST and linkage to care
- Feasibility of using HIVST via digital vending machine technology to improve testing for HIV and linkage to care
- What we will discuss today will be kept confidential. That means that we will not disclose your name or personal details as we use this information
- We will be recording this interview using this voice recorder. This is because it is difficult to remember everything that we will discuss in this interview. Please let us know if this is ok with you.

Again my name is ……..

Please feel free and be open to share your thought around what will be dicussed in whatever language you are comfortable with. Remember there is no right or wrong answer, what we are interested in are your opinions

Topic Guide - Focus Group Discussion

FGD Topic 1: HIV care and testing Version 1.0, 25 October 2018 2018
Objective(s): Explore experiences of young people currently engaging in HIV testing, Determine HIV risk perception among adolescent males

1. HIV testing and care
a. Is it important for guys your age to get tested regularly for HIV?
b. What would motivate guys like you to get tested for HIV?
c. What would stop guys like you to get tested for HIV?
d. Who would or wouldn't need to know about you testing for HIV? Why?
e. Can someone talk about an experience when they went for a HIV test that went really well?
f. can anyone share an HIV test experience when someone went for an Hiv test that went really well(it could be your experience or someone else of your age)
g. what about an experience when someone of your age went for an Hiv test that did not go well(it could be your experience or someone else of your age)
h. what would you do after testing if your result was
(i) negative
(ii) positive

2. Health Care Providers (HCPs) - what about a health care provider would make you most open to:
a. honestly answer questions about your health behavior relating to HIV?
b. discuss possible changes to your health behavior relating to HIV?
c. act on suggested actions?
d. have them perform a physical exam?
e. come back to see them again?

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FGD Topic 2: HIV Self-testing Version 1.0, 25 October 2018 2018

Objective: Explore the perceptions, experiences, and acceptability of using HIVST and linkage to care (going to the clinic for confirmatory test and if positive initiate),

1. what did you know about HIV self testing before today

• If any have heard of the method, ask the following: What have you learned about this subject? Who told you about it?

o What are some of the good things you have heard about it?

o What are some of the bad things you have heard about it?

Facilitator instruction: show the video of the HIV self testing

- Do you think it is something that people might be interested in*?*

o Do you know anyone who has used this method? What was his/her experience?

o Have you considered using it? Please explain.

2. (i) What kind of things would encourage you or other young men to use a HIVST? (you *Might need to probe depending on how they answer, especially the broader answers i.e. easy access, what else etc.***)**

2. (ii) What kinds of things would discourage you or other young men from using a HIVST? (*Might need to probe depending on how they answer, especially the broader answers i.e. poverty, stigma, etc.**)***

3. Based on your answers from the previous topic about Health care providers (HCPs) what would:

(i) Influence you to link to care after receiving a positive HIVST?
(ii) Deter you to link to care after receiving a positive HIVST?
(iii) Would you see it as important to be linked to care after receiving a positive HIVST results?

Probe: why do you say so?

FGD Topic 3: HIV Self-testing via vending machine – acceptability and feasibility Version 1.0, 25 October 2018 2018

Objectives: Determine the acceptability and feasibility of using HIVST via digital vending machine technology to improve testing for HIV, Identify barriers and facilitators among clients for the implementation of HIVST via digital vending machine technology

1. How do you think a HIVST vending machine would be received in your community?
Would young men use it? Why or why not?

2. Where do you think would be a good location for such a machine? Why?

3. What would your parents/guardians say if they knew you had used the machine? What about your friends?

FGD Topic 4: HIV Self-testing via vending machine – Participatory Design Version 1.0, 25 October 2018 2018

Objectives: Design a bespoke vending machine following participatory design workshops with potential clients, designers and health care professionals

1. If a young man used a HIVST and tested positive, what do you think he would want to do next?

2. If you could imagine this kind of machine, what would it look like? Be as descriptive as possible, even the color, shape, design, etc

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. In Depth Interview Guide - Health care Providers: **Version 1.0, 25 October 2018 2018**

Introductory Script (follows full verbal consenting process):

Read verbatim: ["Hello. My name is _____. Thank you for agreeing to an interview today. We are interested to hear about your experiences with HIV testing and care for young people, specifically young males.

I want to remind you that the information you share is confidential. What you say will not be connected back to you. While the information gathered during this interview will be combined with other interviews and shared with the donors and the Ministry of Health; no one will know who said it, when it was said or where it was said. There are no 'right' or 'wrong' answers. We are interested in what you think and your experiences. Please feel free to ask me any questions if something is unclear."]

Part 1 - General information

Establishing rapport and interview context…

a) Please tell me your role (and if applicable rank) within the health facility?
b) How long have you worked in this facility?
c) Based on your experience, what do you feel are the major factors affecting the uptake of HIV testing and care among young males in this facility?
[Probes]
• Overcrowding / infrastructure
• Equipment and other tools to diagnose and treat HIV-infected and HIV-exposed youth
• Stock-outs of ARVs
• Stigma
• Poverty
• Availability / shortages of health workers
• Access / timely / quality health care
• Depression / Psychological issues

Part 2 - Experiences of health care providers with HIV testing and care

I would now like to ask some questions about your experience with HIV testing and care of young people, specifically males.
a) Can you describe the benefits of a HIVST vending machine from your own perspective?
[Probes]
• Perceived timeliness / efficiency of testing and result reporting
• Perceived timeliness of ART initiation for HIV-infected youth
• Acceptability of HIV testing using this platform
• Attitudes of parent/guardians towards the vending machine
b) How would such a machine impact your work?
c) How do you think the parent/guardians would react to their child using a HIVST from a vending machine?
d) Do you think this machine would have any unexpected effects including decreasing or increasing pressure on the health facility to provide ART, HIV testing and counselling and/or other HIV services?
• Please describe
e) What operational issues would need to be addressed to make such a machine possible/available in many areas?
f) Are there any issues related to this project that I haven't asked about that you would like to raise?

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SRQR Checklist for Drivers of HIV Testing A Snapshot of Barriers and Facilitators among ABYM

		Reporting Item	Line number
Title	**#1**	Concise description of the nature and topic of the study identifying the study as qualitative or indicating the approach (e.g. ethnography, grounded theory) or data collection methods (e.g. interview, focus group) is recommended	Line 1 and line 2
Abstract	**#2**	Summary of the key elements of the study using the abstract format of the intended publication; typically includes background, purpose, methods, results and conclusions	Line 21 to line 49
Introduction			
Problem formulation	#3	Description and significance of the problem / phenomenon studied: review of relevant theory and empirical work; problem statement	Line 22 to line 24
Purpose or research question	**#4**	Purpose of the study and specific objectives or questions	Line 25 to line 27
Methods			
Qualitative approach and research paradigm	**#5**	Qualitative approach (e.g. ethnography, grounded theory, case study, phenomenolgy, narrative research) and guiding theory if appropriate; identifying the research paradigm (e.g. postpositivist, constructivist / interpretivist) is also recommended; rationale. The rationale should briefly discuss the justification for choosing that theory, approach, method or technique rather than other options available; the assumptions and limitations implicit in those choices and how those choices influence study conclusions and transferability. As appropriate the rationale for several items might be discussed together.	Line 28 to line 33
Researcher characteristics and reflexivity	**#6**	Researchers' characteristics that may influence the research, including personal attributes, qualifications / experience, relationship with participants, assumptions and / or presuppositions; potential or actual interaction between researchers' characteristics and the research questions, approach, methods, results and / or transferability	Line 102 to line 113
Context	**#7**	Setting / site and salient contextual factors; rationale	Line 124 to line 136
Sampling strategy	**#8**	How and why research participants, documents, or events were selected; criteria for deciding when no further sampling was necessary (e.g. sampling saturation); rationale	Line 138 to line 152
Ethical issues pertaining to human subjects	**#9**	Documentation of approval by an appropriate ethics review board and participant consent, or explanation for	Line 181 to line 195

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SRQR Checklist for Drivers of HIV Testing A Snapshot of Barriers and Facilitators among ABYM

		lack thereof; other confidentiality and data security issues	
Data collection methods	**#10**	Types of data collected; details of data collection procedures including (as appropriate) start and stop dates of data collection and analysis, iterative process, triangulation of sources / methods, and modification of procedures in response to evolving study findings; rationale	Line154 to line 163
Data collection instruments and technologies	#11	Description of instruments (e.g. interview guides, questionnaires) and devices (e.g. audio recorders) used for data collection; if / how the instruments(s) changed over the course of the study	Line 156 to line 160
Units of study	**#12**	Number and relevant characteristics of participants, documents, or events included in the study; level of participation (could be reported in results)	Line 198 to line 208
Data processing	**#13**	Methods for processing data prior to and during analysis, including transcription, data entry, data management and security, verification of data integrity, data coding, and anonymisation / deidentification of excerpts	Line 165 to line 179
Data analysis	**#14**	Process by which inferences, themes, etc. were identified and developed, including the researchers involved in data analysis; usually references a specific paradigm or approach; rationale	Line 165 to line 179
Techniques to enhance trustworthiness	**#15**	Techniques to enhance trustworthiness and credibility of data analysis (e.g. member checking, audit trail, triangulation); rationale	Line 171 to line 179
Results/findings			
Syntheses and interpretation	**#16**	Main findings (e.g. interpretations, inferences, and themes); might include development of a theory or model, or integration with prior research or theory	Line 209 to line 328
Links to empirical data	**#17**	Evidence (e.g. quotes, field notes, text excerpts, photographs) to substantiate analytic findings	Line 215 to line 328
Discussion			
Intergration with prior work, implications, transferability and contribution(s) to the field	**#18**	Short summary of main findings; explanation of how findings and conclusions connect to, support, elaborate on, or challenge conclusions of earlier scholarship; discussion of scope of application / generalizability; identification of unique contributions(s) to scholarship in a discipline or field	Line 331 to line 394
Limitations	**#19**	Trustworthiness and limitations of findings	Line 51 to line 60
Other			

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SRQR Checklist for Drivers of HIV Testing A Snapshot of Barriers and Facilitators among ABYM

Conflicts of interest	**#20**	Potential sources of influence of perceived influence on study conduct and conclusions; how these were managed	Line 446 to line 447
Funding	**#21**	Sources of funding and other support; role of funders in data collection, interpretation and reporting	Line 449 to line 450

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