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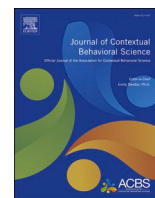
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# Acceptability of an adapted mindfulness and acceptance-based intervention to support adolescents with HIV: A qualitative study with Ugandan health care providers<sup>☆</sup>

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## ABSTRACT

While the adaptation of evidence-based psychosocial support tailors the intervention components to the targeted context, minimizing the associated costs of developing new interventions for low-income contexts, the acceptability of such adapted interventions is important for augmenting successful implementation and sustainability. Given that psychosocial support to persons living with HIV is mostly rendered by healthcare providers, their acceptance of adapted interventions before implementation is crucial. This study explored healthcare providers' acceptance of an adapted mindfulness and acceptance-based intervention supporting adolescents with HIV. Ten healthcare providers at two urban clinics in Kampala, Uganda attended a three-day training on using the adapted intervention and gave feedback on its appropriateness during in-depth interviews conducted thereafter. Semi-structured interviews were based on the Theoretical Framework of Acceptability and findings were analyzed abductively within the seven components of the framework. Overall, the adapted intervention was perceived to be acceptable and appropriate for use with adolescents. Benefits included the intervention offering support beyond a focus on adherence to drugs, refocusing adolescents on aspects in their lives that matter most, and being easy to integrate into providers' work processes. Providers however expressed concern about the time the intervention requires and the possibility of increasing their workload. These findings will support further adaptation and implementation.

## Research data

Data is available upon reasonable request.

## 1. Introduction

Of the estimated 1.75 million adolescents with HIV/AIDS (AWH) globally, 1.5 million live in sub-Saharan Africa (SSA), the world's most

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affected region (UNICEF, 2021). In Uganda, 98,000 adolescents (10–19 years) were estimated to be living with HIV in 2021 (UNAIDS, 2021). Adolescents also had increased HIV/AIDS-related deaths relative to adults and children (UNAIDS, 2021), which can be ascribed to sub-optimal adherence to life-saving antiretroviral therapy (ART) (Alvi et al., 2019). AWH interrupt treatment more often than any other category of people living with HIV (Soomro et al., 2019); of the 92.5% of adolescents initiated on ART in Uganda in 2017, only 65.5% reported optimal adherence and 54.8% had achieved viral suppression (UPHIA, 2017). Treatment interruption contributes to drug resistance, disease progression, increased morbidity, and mortality (Paterson et al., 2002). Achieving the national and international HIV/AIDS goals (95% of people with HIV know their status, 95% are on ART, and 95% on ART achieve viral suppression) requires a sustained effort to improve ART uptake and retention among adolescents (Ministry of Health of Uganda (MOH), 2020; UNAIDS, 2020).

The complex psychosocial challenges that arise from the dual burden of living with HIV while negotiating life stage changes are often linked with sub-optimal adherence among AWH (Bukonya et al., 2019). Adolescence is characterized by a transition from childhood to adulthood and coincides with changes in the social environment, and spending more time with peers (Gutgesell & Payne, 2004). Managing the demands associated with these changes requires developed executive functions, including judgement to promote self-regulation, however, such executive functions are still underdeveloped at this stage (Bell, 2017). This creates a state of dissonance that triggers psychosocial challenges including depression, anxiety, and stress, which are associated with sub-optimal ART adherence among AWH (Nabukeera-Barungi et al., 2015).

Since psychosocial effects are embedded within other barriers to adherence and impact all aspects of treatment among AWH (Vreeman et al., 2017), the provision of appropriate psychosocial support is needed. However, most psychosocial support services in Uganda have been designed for the general population and are not tailored to the specific and unique needs of adolescents (Nabukeera-Barungi et al., 2015). Further, many support interventions, designed for and by Western researchers and populations, are used in settings without the appropriate cultural and population-specific adaptations, (Senyonyi, 2012), thus limiting their efficacy (Vreeman et al., 2017).

Mindfulness and acceptance-based interventions (MABIs) address psychosocial challenges faced by young people (Casu et al., 2021; Hayes & Ciarrochi, 2020) and have even been used with AWH (Mon et al., 2016). MABIs help develop emotion regulation and present-moment awareness skills (Hayes, 2003), which are likely to counteract the imbalance created by adolescents' underdeveloped executive functions of self-control, self-monitoring and judgment (Burckhardt et al., 2017). As with other types of psychological interventions, most MABIs target the general population; however, a recently developed MABI, the Discoverer-Noticer-Advisor-values model (DNA-v) (Hayes & Ciarrochi, 2015), is a life skills behavioral training that supports young people to engage in actions that make meaning across life stages (Hayes & Ciarrochi, 2020). The DNA-v has shown positive outcomes among young people (Falkner et al., 2018; Williams et al., 2012). Yet, evidence supporting its efficacy is limited to resource-rich settings (Casu et al., 2021; Falkner et al., 2018; Livheim et al., 2015), affecting its generalizability (Rathod et al., 2018). Further, evidence-based interventions are often less effective outside their original settings, and necessitate modifications before implementation (Rathod et al., 2018). Furthermore, considering healthcare interventions as standardized for everyone creates inequalities in health delivery, especially for low-resource communities with unique contextual realities that influence their uptake (Baumann & Cabassa, 2020). Thus, the adaptation of interventions is one approach that can help tailor healthcare delivery to societal realities to reduce inequality (Baumann & Cabassa, 2020).

We adapted the DNA-v for cultural saliency (young people in Uganda) and contextual relevance (living with HIV), utilizing two

adaptation frameworks: the Formative Method for Adapting Psychotherapy (FMAP) [(Hwang, 2009)] and the Ecological Validity Model (EVM) [(Bernal et al., 1995)]. The FMAP guided the adaptation procedure: (i) generating knowledge and collaborating with stakeholders; (ii) integrating generated information with theory and empirical clinical knowledge; (iii) reviewing the initial culturally adapted intervention with stakeholders, and revising the adapted intervention (Hwang, 2009). Components of the EVM - social context, methods of delivery, differences in knowledge, values and practices, goals, group relationships, language and metaphors - guided content adaptation (Bernal et al., 1995).

During adaptation, we recruited and engaged 30 stakeholders including psychologists, psychiatrists, social workers, HIV counselors, religious leaders, and young adolescent peers from December 2021 to June 2022, who reviewed the DNA-v manual and gave feedback on its appropriateness for AWH in Uganda. The generated feedback was synthesized with literature to make modifications to the DNA-v. The adaptations included simplifying the manual into plain English (level A2: basic users of the language), replacing technical language with local colloquialisms, adjusting the intervention to fit into a resource-constrained health care system, revising the descriptions of values, finding locally acceptable examples, and adding visual cards/cues for depicting emotions. Complete results of the adaptation stage are reported elsewhere (Musanje et al., 2023).

While adaptation addresses the changes to the intervention components to make them more appropriate to the targeted population (Rathod et al., 2018), researching the perceived acceptability of the adapted intervention among treatment providers and users is crucially important (Sekhon et al., 2016). In the preliminary stages of implementation; providers are well-placed to comment on the relative merits and demerits of new forms of intervention relative to existing forms of support (Hwang, 2009; Proctor et al., 2011). Second, in the treatment of chronic conditions which require lifetime disease management, healthcare providers (HCPs) take a frontline role as trusted experts who know what is appropriate for clients (Wambiya et al., 2018), thus, exploring perceptions and attitudes providers have toward a treatment helps to determine whether they will consider it useful for clients and will be invested in delivering the intervention (Aarons, 2004). Furthermore, gauging providers' perceptions of the acceptability of the intervention not only improves implementation success and sustainability (Carrol & St. Peter, 2014; Proctor et al., 2011), but it also uncovers potential reasons why the intervention may or may not work in a given context which minimizes resource wastage (Odenaal et al., 2020).

Relatedly, innovations in healthcare can only reach their full potential if translated into routine care, thus, engaging HCPs who perform the translation taps into barriers and facilitators to implementation (Presseau et al., 2019). In addition, assessing the social validity of interventions with HCPs improves treatment integrity (Strohmeier et al., 2014). Further to that, establishing social validity with implementers increases the likelihood of continued implementation beyond the testing phase should they find the procedures acceptable (Carrol & St. Peter, 2014).

This paper presents data on providers' feedback about the intervention implementation and sustainability. Although a few similar studies using mindfulness and acceptance-related therapies have been conducted in Uganda, specifically in humanitarian settings (Lakin et al., 2023; Tol et al., 2020), such studies focus primarily on evaluating the treatment outcomes for those who received the intervention, rather than implementation experiences of providers. Yet, sustainable treatment outcomes largely depend on the deliberate and purposive actions of implementers (Proctor et al., 2011). This paper gauges providers' acceptability of the intervention as an implementation outcome. We engaged HCPs, who have relationships with AWH, to assess the prospective acceptability of the adapted intervention before delivery (Sekhon et al., 2021). Given the DNA-v's novelty among HCPs and AWH

in Uganda, gauging its acceptability and feasibility is critical (Sekhon et al., 2021).

## 2. Materials and methods

The study was guided by the Theoretical Framework of Acceptability (TFA) (Sekhon et al., 2017). While several frameworks guide understanding of acceptability in healthcare research, their generic approach has resulted in conflating acceptability with related constructs such as satisfaction and uptake (Keyworth et al., 2022; Sekhon et al., 2017), and hindering a comprehensive investigation (Sekhon et al., 2018). We selected the TFA because it comprehensively and clearly defines acceptability and has been used in health science research (Murphy & Gardner, 2019a). The TFA defines Acceptability as “a multi-faceted construct that reflects the extent to which people delivering or receiving a healthcare intervention consider it to be appropriate, based on anticipated or experienced cognitive and emotional responses to the intervention” (Sekhon et al., 2018) and can be assessed before utilization of the intervention (prospectively) or after utilization (retrospectively) (Sekhon et al., 2017).

We followed the seven facets of the TFA to design a semi-structured interview schedule: (i) Perceived effectiveness: the extent to which the intervention is perceived as likely to achieve its purpose, (ii) Affective attitude: how individuals feel about the intervention, (iii) Self-efficacy: participant’s confidence that they can perform the behavior(s) required, (iv) Intervention coherence: understanding the intervention and how it works (v) Ethicality: fit with an individual’s value system, (vi) Burden: the amount of effort required to participate in the intervention and (vii) Opportunity cost: the extent to which benefits, profits, or values must be given up to engage in the intervention (Sekhon et al., 2016).

We worked with two graduate students who were bilingual native speakers of English and Luganda to translate the interview schedule. One translated the interview schedule to Luganda (a commonly spoken language in Kampala) and the other back-translated it into English. The first author (a bilingual native speaker) and the translators, compared the two versions for accuracy and equivalence, and discrepancies were negotiated.

### 2.1. Study procedure, setting, and participants

We used a case study qualitative design (Crowe et al., 2011) to explore healthcare providers’ prospective acceptability of an adapted DNA-v intervention for use with AWH. A case study approach allows in-depth exploration of issues in real-life settings and is appropriate for use when exploring a professional’s attitude to and experience of a new health initiative (Crowe et al., 2011). The study was conducted at two urban public healthcare centers in the Kampala district of central Uganda, under the administration of the Kampala Capital City Authority. Both health centers offer free HIV treatment and counseling services, serving over 500 AWH with a combined total of 10 healthcare providers (counselors working with adolescents). The study targeted all HCPs. To be eligible for inclusion, a participant had to be a counselor working in ART clinics or directly interfacing with AWH at the two study sites, not having participated in adapting the intervention and being willing to provide written informed consent. Participants were contacted through letters and followed up with phone calls and in-person meetings to discuss potential participation in the study. We recruited and trained all HCPs on how to use the adapted DNA-v intervention to support AWH and all agreed to participate.

### 2.2. The DNA-v intervention

The DNA-v is a manualized therapy with flexible sessions that aims to build psychological flexibility among young people. The DNA-v centers on three functional classes of behavior that promote values and

consistent actions in the acronym DNA: *D* stands for *Discoverer* (exploring the world through trial and error); *N* for *Noticer* (developing the capacity to allow and be aware of experiences non-judgmentally); and *A* stands for *Advisor* (building awareness of the “inner” voice that is programmed to problem solve). Young people can flexibly move from one window to another in ways that bring meaning (values-v) depending on the situation (Hayes & Ciarrochi, 2015).

We offered the DNA-v training to HCPs in three sessions, totaling 12 h (three days for 4 h a day). The training was conducted by the first author, who is trained in using the DNA-v, and the third author who is trained in the therapeutic use of mindfulness and acceptance. The training schedule with content and activities is indicated in Table 1 below.

We then conducted in-depth interviews with HCPs who had completed the training. To minimize social desirability bias (Bergen & Labonté, 2020), we ensured that members of the research team, who did not facilitate the training, conducted interviews. As new information continued to emanate from each interview, all 10 potential participants were interviewed. Reflection was central to the decision to conduct further interviews. Interviews lasted between 30 and 40 min and were audio recorded. The interview schedule is shown in Table 2 below.

### 2.3. Ethics

The study received ethics clearance from Makerere University’s School of Medicine Research and Ethics Committee (Mak-SOMREC-2021-176), the University of California San Francisco’s Institutional Review Board (22–36280), and the Uganda National Council for Science and Technology (HS1656ES). We further obtained administrative clearance from the Kampala Capital City Authority and written informed consent from all participants. Participants were compensated \$20 for participation and to protect their privacy, pseudonyms were assigned during the analysis and reporting of results.

### 2.4. Data management and analysis

All recordings were transcribed verbatim and the two transcripts which were in Luganda were translated into English by two graduate students. The first author, together with the translators, checked versions of the translated transcripts for equivalence and also against the audio recordings for accuracy. All participants also read through their transcripts to eliminate misrepresentation. Data were analyzed using abductive analysis; a hybrid of inductive and deductive thematic analysis (Lipscomb, 2012). Two authors from different disciplines (EK and

**Table 1**  
Content, and activities of the DNA-v training with HCPs.

Training session	Description of content
Session One	Overview of the DNA-v program, main goal (life skills training to support AWH to live well, form better relationships and become who they want to be regardless of the situation). Discussion about group composition, the study materials to use, and the approach: respect and confidentiality. Values: Supporting AWH clarify values (values card sort). Moving in values direction (small steps that matter)
Session Two	The Noticer (allowing and becoming aware of experience non-judgmentally). Using cards depicting emotions to elicit feelings and thoughts among AWH, normalizing noticing, and creating new rules for noticing. Using familiar metaphors such as eating a banana to cultivate mindfulness.
Session Three	Advisor (building awareness of the inner person programmed to problem solve). Normalizing the inner person, when to listen to the inner person, and when not to based on the situation. Discoverer: How to support AWH to explore the world around them through trial and error. Trying, tracking, and building strength to serve values Putting all the D-N-A together while moving towards values.

**Table 2**  
Interview schedule.

TFA construct	Questions
Perceived effectiveness	How appropriate is this program for adolescents with HIV? Can it make a difference for AWH? Why? Can it affect the way you work? How?
Affective attitude	Do you feel this is a good program for AHW? Why? Can you recommend the program to other HCPs? What caught your attention most? Or confused you?
Self-efficacy	How confident are you to run this program with adolescents? Are there challenges that can stop you from using the approach? How comfortable do you feel using the approach? What changes should be made to be able to use it with ease?
Intervention coherence	What do you think the main objective of this program is? How is the objective important to AWH? How do we use the program to help adolescents? Do you know why you should do it?
Ethicality	Would you consider it right to use this approach with AWH in Uganda? Is it important to you as a person?
Burden	Will using this approach add more work? Or change the way you work? Will it complicate or ease your interaction with adolescents? Does it require additional resources to use this approach?
Opportunity cost	If you are to use this program with adolescents: (i) Are there things you have to forgo to use it? Will it interfere with your work schedule?

KM) conducted the data analysis. Both authors listened to two of the audio recordings to become familiar with the data before analysis. The authors independently used open coding on three transcripts before meeting to discuss codes, compare labels, and agree to a core set of codes to apply to all subsequent transcripts. The analysts, however, remained open to including other codes that emerged as the coding process proceeded. In the next step, the codes were iteratively grouped into themes that were deductively developed based on the constructs of the TFA to form an analytical framework. The subsequent transcripts were then reviewed using the analytical framework.

### 3. Findings

#### 3.1. Characteristics of participants

The age of participants ranged from 26 to 48 years with a median age of 32 (SD = 7.14). Three people identified as males and seven as females as the sex assigned at birth. Six of the participants had been working with adolescents for four or more years and the majority had a bachelor's degree as their highest level of education (n = 7). Participant characteristics are shown in Table 3 below.

The study findings are reported following the consolidated criteria for reporting qualitative research (COREQ), under constructs of the TFA as shown in Table 4.

**Table 3**  
Sociodemographic characteristics of participants.

Demographic characteristic	n	%
Sex	7	70
Female		
Male	3	30
Age		
26–30 years of age	3	30
31–35 years of age	5	50
36–40 years of age	2	20
Highest educational level		
Certificate	3	30
University degree	7	70
Length of service		
1–4 years of service	6	60
5–10 years of service	3	30
Over 10 years of service	1	10

**Table 4**  
Adopted TFA constructs and codes identified from the analysis.

TFA construct/Theme	Codes
Perceived Effectiveness	Makes a difference Eases work Support beyond a focus on drugs Appropriate support for AWH Improves interactions with AWH Guiding tool Structures conversations
Affective Attitude	Willingness to apply Interesting Quality of interactions Change perceptions Easier to integrate Appropriate for adolescents Alternative technique New information Centered on adolescent challenges
Self-Efficacy	Confident Willingness to apply Positive attitude Competent Additional support Courage
Intervention Coherence	Understand aim Better with practice Understand the steps/process Found content clear Easy to relate to Relationship with clients Fitting approach Practical in the situation Involvement of adolescents Change reporting standards
Ethicality	Takes time Professional responsibility Workload Less tasking Some terms are difficult to understand
Burden	Not missing out on anything Makes the process better Replacing traditional practices
Opportunity cost	

#### 3.2. Perceived effectiveness

When reflecting on the extent to which the DNA-v intervention could achieve its purpose, providers were optimistic that the intervention was likely to make a difference in the welfare of AWH, and in easing their work, as typified in the quotes below.

*“It can make a lot of difference for adolescents, this type of module invites them to participate more, you get to know a lot about the client easily and more interactively which helps both of you to address the exact problem.”* (Cissy, 30-year-old female counselor)

*“... because of living with HIV, their spirits are crushed, and they easily feel offended by what we say. This method puts them in charge, I think it will help.”* (Bena, 26-year-old female counselor)

Providers appraised the process and methods of the DNA-v as comprehensive for AWH as it focused on adolescence as a stage and addressed lived experiences. By focusing on the life stage, the intervention offers complete support as exemplified in the quotes below.

*“This looks at adolescent life generally not only the aspect of, I have the disease I'm on drugs. So, you're trying to discover okay what is it about this adolescent as a person, not as a patient with HIV? It covers everything.”* (Jane, 48-year-old female counselor)

*“... now I realize that if I help them know their values, something that maybe they're working towards, we can easily relate drug adherence to what they value.”* (Jacky, 32-year-old female counselor)

Some providers further noted that the intervention could go beyond

their traditional focus on drug adherence counseling to address other issues that affect AWH. By dealing with other issues such as managing relationships, the intervention could offer more realistic support since drug adherence hinges on a variety of issues as hereto stated:

*“My focus before the training has been only on drugs. I don’t go much into the social aspect of the adolescent life, probably ask them what are some of the things that bother them.”* (Don, 27-year-old male counselor)

*“In cases like a girl when she gets a boyfriend, sometimes they don’t want the boyfriend to know they are on medicine, so they leave it. This approach makes them realize what is most important in their life and choose carefully.”* (Pearl, 34-year-old female counselor)

All providers reported that they experienced challenges in obtaining information from adolescents during counseling. They appreciated that the cards used in the DNA-v intervention would prompt interactive sessions that would help the adolescents to open up. They further praised the case conceptualization tool in the DNA-v intervention for being a guide to collecting detailed information, which has always been a challenge as indicated in the excerpts below.

*“Someone may fail to explain what is in their mind but when he picks a card, it can give you a starting point.”* (Jake, 45-year-old male counselor)

*“They hate everyone and hate themselves too because of HIV. They come with a lot of anger. This method is participative, maybe they will be interested to talk.”* (Jane)

*“We have not been having a specific tool to capture detailed information apart from the intensive adherence counseling which is asking specific questions on drugs, this form is going to guide us.”* (Jake)

Several providers also alluded to the ease with which the DNA-v process would enable them to structure conversations with adolescents and chart their progress, as shown below:

*“In this approach, you do a recap of the session and tell them, you talked about this and this, you said you’re having this and this, so what has changed.”* (Pearl)

*“Most adolescents have lived with HIV all their lives; we counsel them but they got tired of listening to us. I see this approach makes them participate not just listen.”* (Pearl)

### 3.3. Affective attitude

Overall, participants reported positive feelings toward the adapted DNA-v intervention. Providers expressed willingness to apply the DNA-v immediately as they found it interesting and likely to improve the quality of interactions they have with adolescents. They were also optimistic that DNA-v could change perceptions service users have about counseling, as stated in the quotes below.

*“I would consider using it now because it is interesting. It encourages them to express their feelings without being forced.”* (Bena, 26-year-old female counselor)

*“I just want us to have a normal conversation about something they’ve not heard about, because they already come knowing. I’ve gone to the counselor there’s something wrong, that means I have a problem.”* (Jane, 48-year-old female counselor)

Providers also found the DNA-v easy to integrate into their work process and considered the idea of group therapy to be a good approach for adolescents:

*“Adolescents meet in groups and play, small groups of like 5–6 before they see the clinician. I think this can be integrated into those groups. They learn from each other. Remember they’re age mates.”* (Don, 27-year-old male counselor)

Some providers considered the DNA-v to be an alternative approach that can improve their counseling work and conceded that the intervention provided them with new information and skills they were unaware they lacked.

*“If you stick on the previous usual traditional ways of counseling, sometimes you may not explore, using different techniques helps to ensure we explore their challenges.”* (Jacky)

*“After many years meeting with different experts in adolescents, I’m surprised that there are also other skills that I hadn’t known before. I request that you involve me more so that I can gain more skills.”* (Jake)

Providers also felt the DNA-v was easy to use even in the absence of counseling skills or background. They emphasized that it would be easier to involve many other people even those outside the clinic setting.

*“I’ve seen it is easy to use, and even if someone doesn’t have any other counseling skills, they can be able to apply it and help someone in need.”* (Bena)

*“My suggestion is that, it doesn’t just stop here, let us continue like teaching it to other people who are outside this facility so it becomes a general tool because I’ve seen it is easy to use.”* (Jacky)

Finally, providers found the content and methods used in the DNA-v approach unique and appropriate for adolescents and centered around the challenges they face.

*“It is a bit playful that it encourages them to play, and enjoy. It is not like these other counseling sessions where we encourage them always to talk, this makes them feel like young people.”* (Bena)

*“How this process was organized to me, it is something that helps out young people because everything is rotated about relationships.”* (Pearl)

*“This method encourages facing problems not running away. All we have done is preaching to them to act strong as if they are old enough to do this; I think we need to tell them that taking drugs is not easy, feeling scared is very okay and everyone goes through it.”* (Moze, 31-year-old male counselor)

### 3.4. Self-efficacy

Under this construct of the TFA, we report health providers’ confidence to use the DNA-v, to support adolescents. Providers expressed confidence in being able to use the DNA-v after undergoing training and some reported that they had begun to integrate the DNA-v into their daily work. However, they also noted that it would take a positive attitude on an individual basis to commit to using a new method as the quotes below exemplify.

*“I can confidently use the DNA-v, especially the cards. I even asked a colleague if we shall have a chance to own these materials when trainers leave to keep using them here.”* (Carol, 33years old female counselor)

*“Integration into our work is easy but it goes back to someone’s attitude. I believe integration is very easy if someone is very positive about something.”* (Cissy)

Several providers felt that the training had equipped them to competently deliver the DNA-v sessions while others felt they needed additional support before they could become independent, as stated in the quotes below.

*“I see myself able because I have understood it clearly. And I feel I am competent to provide the services during the counseling sessions using the disc.”* (Pearl)

*“I can’t lie that I’ll be perfect. Someone should be available to tell me if I am doing it right. Some concepts are also hard to differentiate at this point.”* (Don)

Providers further expressed that the flexibility involved in using the DNA-v gave them the courage and willingness to try using it with less concern about a given order as hereto stated.

*“Since we can start from anywhere depending on the person or group, I am counseling, then no need to worry.”* (Jake, 45-year-old male counselor)

*“When they were training us, I saw you can begin from anywhere. I may start with Advisor or anything, it is not fixed”* (Jane)

### 3.5. Intervention coherence

Under this theme of the TFA, we examined the extent to which providers understood the purpose and process of the DNA-v model. Providers stated what the aim of DNA-v is and also exhibited a greater understanding of steps taken when using the DNA-v:

*“It is about decision making. You will not stay free without problems, or challenges, you have to make careful decisions and accept to go on not to remain stuck.”* (Asha, 34-years-old female provider)

*“If I get a client, I have to first identify what does the client value most? Then why are they taking a different direction? Then understand more of what the client is thinking about and how they feel. Then we identify those steps which can be taken to achieve the value.”* (Pearl)

Providers further revealed that it was easier to understand the process of the DNA-v approach because the content was clear and easy to relate to, but also emphasized that understanding will improve with time and practice as most of the concepts are new.

*“The information and the content was clear and understandable because of the way it was designed; it is easy to grasp.”* (Jacky)

*“The more we practice it, the more we understand and integrate it into our daily work because right now it’s the theoretical concept that we have, we haven’t put it into practice.”* (Cissy)

### 3.6. Ethicality

The construct of ethicality centered on the extent to which the DNA-v model was perceived to be a good fit for participants’ value systems. Providers discussed values from their personal and professional roles in practice. All providers reported that maintaining a good relationship with clients was valuable not only as a professional requirement but as a personal value. As shown in the extracts below, they considered the DNA-v as a fitting approach that could help improve relationships with clients.

*“Our relationship with adolescents sometimes goes bad because we keep mentioning drugs in our conversations which they hate to hear. But technically, there is a way how this approach makes them give you answers without mentioning words like drugs.”* (Jake)

Relatedly, providers noted that their professional role is to offer guidance rather than make suggestions for clients. They reported that the DNA-v approach has practical utility as it seeks to empower clients to make independent decisions.

*“Counselors are not supposed to give advice but we are supposed to give information to the clients then they choose, it’s them to take a decision and this is what this model is saying.”* (Jacky)

Further still, providers underscored the relevance of improving client participation as valuable in therapy. They saw the DNA-v as a practical method that would increase the involvement of adolescents.

*“We’ve been overtaking the session like you talk and talk, but this program will create a gap to listen to the adolescents more than talking.”* (Cissy)

However, providers noted that using the DNA-v might change reporting standards and contradict operating procedures, and consequently their work values. They suggested the need to formally engage with officials before incorporating the DNA-v, as stated by Asha (34-year-old female counselor):

*“You will need to talk to our bosses about this model because the file goes through many hands, they will say, the counseling has changed.”*

### 3.7. Burden

This construct considered the perceived effort that is required to use the DNA-v to support clients and what providers thought were the burdens the intervention would place on AWH. We classified ‘burdens’ into four aspects: physical effort, mental effort, time, and resources.

Several providers reported that the DNA-v might take a lot of time when counseling individuals, given the large number of clients they serve at the clinic. However, they noted that when used for group counseling, the DNA-v could save time.

*“I don’t think we can use everything we’ve learnt because of time. When adolescents come to the clinic, they have to see the counselor, then go to the lab to do viral load test, and also see the doctor. Counseling will take long and it will affect other programs.”* (Asha)

*“Adolescents don’t want to spend much time at the HIV clinic, other people will see them and guess their HIV status. This method needs a lot of time; they will not wait in the line.”* (Don)

*“When used in a group, this makes it easy that you save a lot of time and help different people in a little given time.”* (Jane)

Some providers, however, did not consider time to be a burden and warned that rushing to save time when handling clients in complicated situations only results in referrals and creates a higher workload for others, as stated by Bena:

*“I realize that sometimes we refer because you haven’t given people time and this model is about giving a person time.”*

Providers had mixed reactions to the physical demands of the DNA-v intervention in terms of workload. While some providers indicated that the DNA-v would cover gaps in their work, others had concerns about supervisors allocating them more clients once they find out that the DNA-v facilitates the collection of detailed information, as seen in the quotes below.

*“It’s coming to improve on what I’ve already been doing, most of the time we get stuck on how to proceed with adolescents.”* (Cissy)

*“It will add us work because whomever you will support, will say, please even help us on this one we need more information. It’ll put those few who will use it on demand to ensure they counsel more, reach more people, they identify more.”* (Jake)

Relatedly, while some providers found the content of the DNA-v easy to understand given their professional training and experience of working with adolescents, others reported that certain concepts or terms used in the DNA-v approach were hard to understand and might require time to comprehend.

*“Basing on the fact that I know adolescents and psychosocial issues this was easier for me to understand.”* (Pearl)

*“I don’t think it will be so difficult although there are those difficult ones that we need to go through step by step. We can’t deny that everyone is going to be, it won’t be hard but there are those difficult ones that truly need time.”* (Jane)

Finally, providers believed that the DNA-v intervention would help lessen the burdens created by the traditional methods and in turn increase the willingness of AWH to engage with services. Providers also

anticipated that the approach of using plays, songs, and metaphors would be interesting and appeal to AWH as the quotes below illustrate.

*“We just give them papers to write their problems, whereby sometimes these kids cannot write. Sometimes these kids because of the situation they’re passing through, feels like writing is a burden. Cards can make it easier.”* (Moze)

*“It’s a bit interactive it is going to be very easy for the children also to apply it.”* (Jacky)

*“It’s not like these other counseling sessions where we push them always to talk, talk, talk, to get information out of them, they will be playing and enjoying.”* (Carol)

### 3.8. Opportunity cost

Under this construct, we looked at the benefits providers will have to forego to use the adapted DNA-v intervention. We focused on the costs associated with implementing the DNA-v rather than the costs associated with attending the training. Most providers anticipated that the DNA-v would not disrupt their work processes but rather improve them, as stated in the quote below.

*“I don’t see it as an inconvenience, it’s coming to improve on what I’ve already been doing.”* (Asha)

Furthermore, providers saw the DNA-v as an opportunity to move away from traditional processes that burden clients as stated by Pearl.

*“We have been giving adolescents papers and asking them to write, some cannot even write, and sometimes because of their situation, it feels like a burden, but now we shall just use cards with photos.”*

## 4. Discussion

This study used the TFA to explore healthcare providers’ perspectives on the DNA-v as an adapted MABI for use with AWH. Findings from the study can guide further adaptations or level ground for implementation and scale-up of the intervention. Providers shared their feelings about the intervention and commented on its appropriateness for use with AWH and challenges that might arise with its usage. The adapted DNA-v intervention was appraised as having the potential to improve interactions and conversations with AWH, which has been a considerable challenge in practice. Providers also suggested that the approach could offer realistic and comprehensive support that extends beyond a concentration on ART adherence and offers the opportunity to collect detailed information with minimal effort. While promising, factors such as time, workload, and additional support will need to be considered before usage. Overall, the results show an acceptance of the intervention and also underscore the importance of offering comprehensive and stage-appropriate support.

This is the first study, to our knowledge, to assess providers’ acceptance of the adapted DNA-v as one of the MABIs that can be used to support AWH in a low-income context. Novel findings of this study include how providers were able to understand the aims of the adapted DNA-v intervention, and how they related it to their counseling practice. Numerous benefits of using the DNA-v were mentioned but the ability to center support on the client’s values, feelings, and expectations coupled with improving communication and the provider-client relationship through facilitated dialogue were salient. This is in line with previous research with AWH suggesting that difficulty in facilitating disclosures is the biggest obstacle to offering support services (Rujumba et al., 2010). Additional benefits such as the content of the intervention being appropriate for adolescents, ease of use, fitting providers’ values systems, and the intervention offering life skills to adolescents that extend beyond conversations of ART adherence gave providers confidence that they could use it to improve the quality of the services they offer to

AWH. While participants also identified that the use of the intervention may require investing more time and effort, the overall assessment of the adapted DNA-v, was that it was acceptable to providers.

The study explored the prospective acceptability of a new intervention by obtaining providers’ opinions and feelings thereof before its implementation. This approach is well supported by earlier research that emphasizes the relevancy of obtaining providers’ insights on the appropriateness of interventions with which they will be involved before their delivery, to obtain a realistic view of barriers and facilitators to implementation (Schraeder et al., 2020). Our study, however, improved the procedure to make the process more beneficial. For example, instead of relying on assumptions that HCPs had prior knowledge of mindfulness and acceptance to be able to provide useful insights, we offered training on how to use the intervention before engagement. This approach enabled HCPs to make more realistic comparisons with the standard of care to give informed feedback that extended beyond subjective feelings. Most studies on the acceptability of health intervention focus on acceptability during or after implementation (Pavlova et al., 2020), missing out on the opportunity to identify challenges ahead of time.

Furthermore, our research went beyond the surface exploration of acceptability that often stops at measuring satisfaction with the intervention (the most commonly considered construct in acceptability studies) (Wenze et al., 2014), to triangulating opinions of providers through lenses of a framework that enables tackling aspects that directly inform the implementation of the intervention. For example, understanding the burden associated with using the intervention helps in making adjustments that can result in improved usage, while considering self-efficacy helps in identifying capacity challenges before implementation. Beyond the identification of factors associated with the acceptability of the intervention, our study also explored the reasons for acceptance. By unearthing the reasons for acceptance such as flexibility of usage, relying on methods that are appropriate for adolescents, and ease of integration into work, we highlighted potential facilitators for implementation and utilization of the intervention.

By using the TFA to explore the acceptability of the adapted DNA-v, we conducted a systematic and comprehensive inquiry that produced detailed feedback that can help in addressing key implementation questions. This is consistent with research that highlights the relevance of frameworks in providing streamlined guidelines to generate relevant and responsive data that enables broader inquiries (Schraeder et al., 2020). Our methods are also consistent with studies that encourage the use of the TFA while assessing the acceptability of health interventions because of its comprehensive nature (Murphy & Gardner, 2019b). The approach, however, contradicts studies that caution against the use of frameworks in qualitative inquiries suggesting that frameworks might limit inductive reasoning, lacks the depth of information that does not fit into predetermined categories (Garvey, 2021), and cannot accommodate heterogeneous data (Gale et al., 2013). Nevertheless, frameworks are still considered useful especially when studying concepts that are vaguely defined and have overlapping constructs (Sekhon et al., 2016). Thus, utilizing an existing framework with a clear definition of acceptability and elaborated constructs enabled us to explore acceptability more holistically.

From the study, strategies such as; incorporating components of the DNA-v into routine care rather than rolling it out as a complete program, using the DNA-v as a complement not as a substitute to adherence counseling which is the approved standard of care, integrating the DNA-v into existing adolescent programs such as drama sessions, and continuous training and supervision of providers for fidelity, will improve uptake of the intervention.

## 5. Strengths and limitations

This study has several strengths. First, as frameworks are rarely used in testing adapted interventions, the use of the TFA facilitated a systematic inquiry and generation of a breadth of knowledge which is vital



at this stage of planning implementation. With the TFA we could examine all aspects that might hinder the use of the adapted intervention. Secondly, our study also explored prospective acceptability as providers gave feedback on an intervention they had not yet integrated into routine practice. With this approach, the study was able to generate feedback that can be used to address challenges ahead of time to improve the implementation and clinical outcomes of the intervention.

Notwithstanding these strengths, our study had limitations. Foremost, the period between when the training was conducted and when interviews took place was brief. There is a possibility that feedback was affected by a recency effect (Greene et al., 2000), that is, participants could have provided positive feedback as they had just received training and were still excited about the process. Additionally, providers did not have adequate time to try out the intervention with adolescents, thus, their feedback was based on how they felt rather than on their experience of implementation. Finally, the study was conducted with treatment providers but not service users, as the final recipients of this treatment. A high priority for future research is to enlist service users in assessing adapted interventions, drawing on their lived experiences to explore facilitators and barriers.

## 6. Conclusion

This study shows that an adapted DNA-v intervention is acceptable to healthcare providers. As the study looked at acceptability as a multifaceted construct and goes beyond enjoyment of and satisfaction with the intervention, it provides opportunities, motivation, and challenges that should be considered when planning the implementation of the DNA-v and evaluation of effectiveness when used with AWH. As the successful implementation of interventions largely relies on healthcare providers, their acceptance of such interventions is critical. The implications for implementation arising from this study include the following: utilization will require continuous training and support beyond the initial training; more frequent use of group therapy alongside individual sessions to lessen the workload and time commitment that arise when DNA-v is used; utilizing pre-existing adolescent groups and programs to ease integration, and allowing flexibility in application to promote uptake.

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## Declaration of competing interest

none.

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