ORIGINAL RESEARCH

A Qualitative Exploration of Perceived Medication Adherence Determinants Conducted Among Older Adults with HIV and Type 2 Diabetes Mellitus

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Background: People living with HIV (PLWH) are at higher risk of developing type 2 diabetes (T2DM). Both chronic conditions require individuals to adhere to medication regimens, yet few studies have sought to explore medication-taking behaviors among individuals with comorbid HIV and T2DM (HIV+T2DM).

Objective: This qualitative study sought to: 1) identify and compare perceived determinants of medication adherence for HIV and, separately, for T2DM, and 2) explore how participants prioritize conditions.

Methods: Between October 2022 and January 2023, we conducted in-depth interviews with individuals aged 50 or older, living with comorbid HIV+T2DM. Participants were prescribed oral medications to treat their conditions and had recent clinical measures indicating probable challenges with medication adherence. Interviews with consented participants from a large academic health center in the Midwest were conducted remotely. Questions largely drew from the Theoretical Domains Framework (TDF), a widely used implementation science framework. Additional questions explored the prioritization of conditions. Analysis employed the Framework Method and a side-by-side comparison of key determinants of medication adherence by condition.

Results: A total of 19 interviews were audio recorded, transcribed, and analyzed. Participants were an average age of 61, mostly male (89.5%), and Non-Hispanic White (47.4%). Although results revealed many commonalities between perceived determinants of medication adherence for HIV and for T2DM, differences relating to two TDF domains were noted: nature of the behavior (taking medications as prescribed), and motivations and goals. Many participants viewed their conditions as equally important, though they suggested T2DM was more difficult to manage, largely due to lifestyle modifications.

Conclusion: As individuals with HIV develop chronic conditions, such as T2DM, they may require additional medication adherence support. Attention should be paid to offering support early. Disease perceptions may differ by condition, and as such, one's motivations to take medication as prescribed may also differ by condition.

Keywords: qualitative, HIV, type 2 diabetes, medication adherence

Introduction

Four decades into the HIV epidemic, treatment regimens have vastly improved and increased life expectancies for people living with HIV (PLWH).[1] Due to the natural aging process and factors related to HIV and antiviral treatment itself, PLWH are now living longer and are more likely to develop comorbid conditions over their lifetime, including type 2 diabetes (T2DM). National data show that the incidence of T2DM among PLWH is four times higher than among the general population.[2] Compared with the general population, adults with comorbid HIV and T2DM (HIV+T2DM) are also more likely to experience worse outcomes, including chronic kidney disease, cognitive impairment, and mortality.[3–5]

For those living with HIV and/or T2DM, medication adherence is a critical component of chronic disease management.[6–13] A large body of literature has elucidated individual-level challenges to safe and consistent medication use, revealing inadequate adherence is associated with suboptimal treatment, adverse drug events, and poor quality of life.[14,15] Nevertheless, research has overwhelmingly focused on single treatments and/or conditions instead of considering the often-complex treatment regimens that are prescribed for individuals with comorbid conditions, including HIV+T2DM.[11] This siloed approach limits our understanding of medication adherence and how individuals manage and prioritize co-occurring chronic conditions. Understanding the unique factors that impact medication taking behaviors for HIV and T2DM, together and separately, is essential to informing future interventions that promote chronic disease self-management among the growing population of individuals with HIV+T2DM.

To address this research gap, we conducted a qualitative study among older adults living with HIV+T2DM whose recent clinical measures indicated probable poor medication adherence. Our study aimed to: 1) identify and compare perceived determinants (barriers and facilitators) of medication taking for HIV and T2DM, considering these conditions both separately and together, and 2) explore how adults with HIV+T2DM prioritize and manage each condition.

Methods

We conducted a cross-sectional, qualitative study guided by the Theoretical Domains Framework (TDF). The TDF is an implementation science framework used to facilitate the development and implementation of healthcare practices.[16,17] The original TDF includes 12 multi-level constructs designed to capture determinants of current or future successful intervention implementation strategies.[17] These include, among others, skills and beliefs about capabilities, social influences, and environmental context and resources. While initially designed to examine determinants of evidence-based practices at the clinician or health system level, the application of the TDF at the individual or patient level, including for medication adherence, is increasingly common.[18,19]

All research activities were approved by the Northwestern University Institutional Review Board and complied with the Declaration of Helsinki.

Study Participants

To be eligible for this study, participants had to be: 1) English-speaking, 2) aged 50 or older, 3) diagnosed with HIV and T2DM, 4) taking oral medications to treat their HIV and diabetes, 5) receiving care at any practice affiliated with the participating health center, and 6) elevated clinical values within the past 12 months: HIV RNA >50 copies/mL and/or hemoglobin A1c (HbA1c) ≥7.5%, an indication of probable poor medication adherence. Exclusion criteria included having any severe, uncorrectable vision or hearing challenges, as well as any cognitive impairment that would prohibit informed consent.

Recruitment

Potentially eligible participants were identified through a query of an electronic health record (EHR) data warehouse at a large academic medical center in the Midwest. Research coordinators (RCs), trained in qualitative research, contacted identified individuals by phone to confirm eligibility. Informed consent, via electronic signatures, was subsequently obtained prior to conducting the interview; this included consent for the publication of de-identified responses.

Data Collection

One-time, semi-structured, interviews were conducted between October 2022, and January 2023. Interviews were conducted remotely over secure web conferencing software by RCs and were audio-recorded; these lasted approximately 60 minutes. Interview guides were informed by the TDF with questions pertaining to domains in accordance with published guidelines.[16] Questions sought to identify determinants of medication adherence separately for HIV and for T2DM and to explore how participants prioritized conditions. Participants also completed a brief demographic questionnaire as well as validated measures of health literacy and patient activation. Health literacy was measured using a three-item screener,[20] while patient activation was measured using the 10-item Consumer Health Activation Index.[21]

Participants were compensated $75 for their time. All quantitative responses were captured in REDCap. RCs took detailed field notes; audio files were professionally transcribed.

Analysis

To analyze qualitative data, we employed a multi-step process for the Framework Method, a largely deductive approach to content analysis of qualitative data.[22] We began by reading transcripts for familiarity; we also wrote content memos. We then created codebooks of a priori codes derived from the original TDF and emergent codes derived from the transcripts.[17] Using NVivo qualitative software, we piloted the codebook on an initial set of four transcripts. These were coded by three separate coders using simultaneous coding, with all coding reconciled and the codebook modified. The remaining transcripts were independently coded, and analysts held regular meetings to review coding and to iteratively discuss emergent themes.[23] Excel matrices were subsequently used for data reduction purposes with individual participants represented in rows and individual codes represented in columns; this approach allowed for the further examination of determinants, as well as the display of illustrative quotes.[23] Summaries across participants revealed key themes.

In keeping with published guidance, only themes pertaining to relevant TDF domains are presented.[16] Relevant domains were those identified by the study team as having the following criteria:

> (1) relatively high frequency of specific beliefs and/or themes; (2) presence of conflicting beliefs; and (3) evidence of strong beliefs that may affect the target behavior.[16]

This process was implemented separately for TDF domains pertaining to medication adherence for HIV and for T2DM. Analysts then compared findings across conditions using a side-by-side table Simple, descriptive statistics were calculated using SAS software (version 9.4, Cary, NC) to describe sample demographic and psychosocial characteristics.

Results

Study Sample

We analyzed data from a total of 19 participants, a sample size sufficient to achieve saturation of qualitative themes.[24,25] Sample demographics are presented in Table 1. In brief, participants had an average age of 61. They were mostly male (89.5%), and identified as lesbian or gay (83.3%), non-Hispanic (84.2%), and White (47.4%). The majority (84.2%) had

Table 1 Participants Demographics

	(n=19)
Age	
Mean (SD)	61.3 (6.5)
Median (Range)	61.0 (51.0–72.0)
Gender Identity, n (%)	
Male	17 (89.5)
Female	2 (10.5)
Sex Orientation, n (%)	
Straight or Heterosexual	3 (16.7)
Lesbian or Gay	15 (83.3)
Race, n (%)	
Hispanic	3 (15.8)
Non-Hispanic White	9 (47.4)

(*Continued*)

Table 1 (Continued).

	(n=19)
Non-Hispanic Black	5 (26.3)
Non-Hispanic Asian	1 (5.3)
Non-Hispanic Other	1 (5.3)
Education, n (%)	
High School	2 (10.5)
Some College	5 (26.3)
Bachelor's Degree	6 (31.6)
Master's degree	4 (21.1)
Doctorate	2 (10.5)
Employment Status, n (%)	
Working for pay	8 (42.1)
Unemployed	1 (5.3)
Unable to work due to disability or illness	3 (15.8)
Retired	6 (31.6)
Unknown	1 (5.3)
High VL, n (%)	6 (31.6)
High HbA1c, n (%)	16 (84.2)
Health Literacy, n (%)	
Limited	8 (42.1)
Adequate	11 (57.9)
Patient Activation Level (CHAI), n (%)	
Low	9 (47.4)
Moderate	8 (42.1)
High	2 (10.5)

at least one HbA1c greater than or equal to 7.5% in the past year, while about a third (31.6%) had at least one viral load (VL) of 50 copies/mL or greater in the same timeframe. Some participants had a bachelor's degree (31.6%) and were employed (42.1%). Most had adequate health literacy (89.5%), and about half had low patient activation (47.4%).

Thematic Findings

In Table 2, we list the TDF domains we examined alongside sample questions. Results from our analysis identified the following relevant TDF domains for medication adherence related to either chronic condition: 1) beliefs about capabilities, 2) beliefs about consequences, 3) memory, attention, and decision processes, 4) social influences, 5) emotion, 6) nature of the behavior and 7) motivation and goals. Table 3 presents a side-by-side listing of these domains and the determinants (barriers and facilitators) they revealed for each condition; illustrative quotes are also provided. Below, we

Table 2 Example Interview Questions by TDF Domain

TDF Domain[a]	Example Questions
Knowledge	What medications do you to take to manage your [HIV/T2DM]? At what time do you take those medications?
Beliefs about capabilities	How confident are you that you take your [HIV/T2DM] medications the way your doctor asked you to take them?
Beliefs about consequences	What would happen if you did not take your [HIV/T2DM] medications the way your doctor asked you to take them?
Memory, attention and decision processes	What, if anything, do you use to help you remember to take your [HIV/T2DM] medications?
Social influences	How comfortable are you talking to your health care provider about your experiences taking your [HIV/T2DM] medications?
Emotion	How do you feel about having to take your [HIV/T2DM] medications?
Motivation and goals	What, if anything, motivates you to take your [HIV/T2DM] medications? What gets in the way?
Nature of the behavior	How long have you been living with [HIV/T2DM]?

Note: [a]Note we did not ask about all 12 original TDF domains as some were not deemed pertinent to individual medication-taking behavior.

describe similarities and differences for perceived determinants of HIV and T2DM medication adherence by relevant domain. We subsequently report perceived priorities between conditions.

Most Perceived Determinants of Medication Adherence for HIV and T2DM are Similar

Beliefs About Capabilities for Medication Adherence

All participants reported feeling confident in their abilities to take their HIV medications as prescribed; most often, they attributed their confidence to established routines and supportive care teams. Similar findings were reported for T2DM, with nearly all participants revealing they also felt confident in their abilities to take their T2DM medications as prescribed. However, while some suggested their confidence hinged on established routines, many described their confidence in relation to lifestyle modifications, indicating that they felt more confident in their abilities to take T2DM medications than to follow diet and exercise regimens.

Beliefs About Consequences of Non-Adherence

For both conditions, nearly all participants viewed the consequence of non-adherence as poor health outcomes. Most participants reported that non-adherence to HIV medications could lead to increased viral loads, drug resistance and/or susceptibility to other health conditions. Several revealed their perspectives were rooted in their own past experiences with non-adherence. Participants similarly indicated that non-adherence to T2DM medications would negatively affect their glucose or HbA1c levels, leaving them feeling unwell or leading to an eventual insulin prescription. Many participants also acknowledged the potential for diabetes-related complications such as amputations, vision loss, poor kidney functioning, and neuropathy.

For both conditions, many participants also reported a variety of ways in which non-adherence might impact relationships with their health care providers. Of these, the majority believed that if they did not take their medications as prescribed, their providers would likely express disappointment with them, though some commented that their providers would also be quick to help resolve challenges.

Social Influences on Medication Adherence

Nearly all participants reported feeling comfortable with their health care providers. They noted specifically that they feel comfortable talking to health care providers about medication adherence – for either HIV or T2DM. For many, an established rapport, developed slowly over time, was thought to contribute to this sense of comfort.

Table 3 Illustrative Quotes by TDF Domains and Condition

TDF Domain	HIV	Illustrative Quotes	T2DM	Illustrative Quotes
Beliefs about capabilities	• Confidence they can adhere to the medication as prescribed (facilitator)	• "[I'm] very confident… I just know that I'm supposed to take them [HIV medication] every day, and around the same time". (PID 26, high HbA1c)	• Confidence they can adhere to the medication as prescribed (facilitator)	• It's pretty easy to me [taking diabetes medications] …I take my medicine before I eat. It's just that natural that I take it". (PID 17, high VL)
Beliefs about consequences	• Belief that non-adherence will result in increased viral loads and/or drug resistance (facilitator) • Belief that non-adherence would provoke a reaction from health care providers (facilitator)	• "I can't just stop taking them [my HIV medications] for a week or something like that, even though I might like to, because then the virus will keep going and that could be bad, and I could develop some resistance". (PID 27, high HbA1c) • "[My doctor would] probably be very scornful about it and try to ask me why I would stop taking my HIV medications… we would probably have some very interesting conversations". (PID 9, high HbA1c e) • "She's very attentive to all of my numbers and would probe a little bit to see what is going on, and then try to figure out how to help me get back on track". (PID 27, high HbA1c)	• Belief that non-adherence will result in poor health outcomes (facilitator) • Belief that non-adherence would provoke a reaction from health care providers (facilitator)	• "Without a doubt, my health would deteriorate. My blood sugar would be really off. I would not feel well. I would have very large up and down energy swings". (PID 30, high HbA1c) • "Oh, I think he wouldn't be too happy [if I didn't take my diabetes medication]". (PID 17, 51-year-old White male, high VL) • "I think that they might suggest a different medication, maybe a newer medication that I would only take once a month or only one pill each day or something like that". (PID 29, high VL and high HbA1c)
Social influences	• Comfort discussing HIV medications with health care providers (facilitator)	• "[My doctor] never makes me feel like, "I'm at the doctor's office. Oh, God, what am I going to say?" No. I look forward to his visits because we discuss different things. We discuss trouble, we discuss personal stuff. We have developed a great relationship". (PID 15, high HbA1c)	• Comfort discussing T2DM medications with health care providers (facilitator)	• "There's nothing that I hold back on telling [my doctor]". (PID 30, high HbA1c)
Emotion	• No emotional response to taking HIV medications (facilitator) • Positive emotional response to taking HIV medications (facilitator) • Negative emotional response to taking medication in general (barrier)	• "I don't have any real feelings about it, it's just a way of life". (PID 7, high VL and high HbA1c) • "[Sometimes] as I am taking it, I just feel like there's this confidence that I have been on them for so long and that they are doing what they are supposed to be doing. I really do not worry that I am going to have a blood test in six months and that it's not going to be a good outcome". (PID 16, high HbA1c) • "It's never good. It's a reminder in a way of the disease you have. (PID 14, high HbA1c)	• No emotional response to taking T2DM medications (facilitator) • Positive emotional response to taking T2DM medications (facilitator) • Negative emotional response to taking medication in general (barrier)	• "Honestly, it's just another pill". (PID 20, high HbA1c) • "I am okay when I have to take it, because I know I do not want to get into a dangerous zone. I want to bring my diabetes numbers down, and I am actually doing that. This is the first time in God knows how long, they have been below seven". (PID 33, high VL) • "I guess I just do not like the fact that I have these two conditions that have to be managed by medication. I do not like it". (PID 27, high HbA1c)

Memory, attention, and decision processes	• Reminder resources such as pill boxes and alarms (facilitator)	• "I have a two-week pill box that I stock up. It's easily accessible and everything's already counted out, so it helps me a lot to stay on schedule". (PID 27, high HbA1c)	• Reminder resources such as pill boxes and alarms (facilitator)	• "It's two reminders. Take your pills in the morning, take your pills in the evening, and I also have reminders to check my glucose three times a day. It's like glucose, glucose, glucose… Now a phone is reminding you and… there's no excuse". (PID 14, high HbA1c)
Motivation and goals	• Motivation to maintain health and quality of life (facilitator)	• "For me to continue to be healthy, I have to take medications and I believe in that". (PID 14, high HbA1c)	• Motivation to avoid additional medications and/or complications (facilitator)	• "The motivation is to see the numbers and to make sure that I do not get to the point to take the insulin. I do not want to do that and also for my own health reasons. I need to be healthy to keep working. You know what I mean? I do not want to have any other issues with other complications due to the diabetes". (PID 15, high HbA1c)
Nature of the behavior	• Formation of a habit (facilitator) • Admission of occasional missed doses due to fatigue, depression, side effects, changes in routine, and delays in refills and cost (barriers)	• "The other thing that could possibly [make me miss a dose] is if I went to sleep without thinking to take the medicine. You know what I mean?" (PID 7, high VL and high HbA1c) • "I went to grab my pill box and all of a sudden, I looked, and I saw that all my pills from the previous day were still there. I was like, 'Oh no, what happened?' Then I thought back and it's like, 'Oh, right. I got a phone call and—'. Yes. It interrupted my routine and so I forgot to do it". (PID 16, high HbA1c)	• Formation of a habit (facilitator) • Admission of occasional missed doses due to side effects and regimen complexity (barriers)	• "I am very strict to the medicine and I just take all at once in the morning before I go to work. I know it's done. I do not have to worry about, 'Oh, I need to take the medicine,' or, 'I forgot the medicine.' I have been doing it for so many years that it's like a habit now. It's part of your routine and it's hard to forget. It's like going to work". (PID 15, high HbA1c) • I would say that going back to two times a day has been tough for the last couple of years. I am just not as good at taking them in the morning as I am at taking them at night. Forgetting, and the morning pills upset my stomach, because you are not eating as much in the morning for breakfast as you are at night for dinner". (PID 20, high HbA1c)

Emotions Provoked by Having to Take Medications

Whether discussing HIV or T2DM medication adherence, participants reported a variety of emotions. For many, medication taking was just something they did, and the behavior did not invoke any specific emotions. However, for a slight majority, there were positive feelings of gratitude and reassurance. In taking their medications, they felt they were "doing what they're supposed to be doing" to take care of their health. Fewer participants revealed negative emotions such as shame, disappointment, or frustration with having to take their medications. Those who did, largely noted that these emotions were present at diagnosis but have dissipated in the time since; medication taking is no longer a negative reminder of their condition(s) and they no longer feel "overwhelmed" by their treatments. Only two participants insisted that, regardless of the reason or condition, they disliked having to take medications.

Memory, Attention, and Decision Processes Related to Medication Adherence

The use of resources such as pill boxes and alarms were mentioned by more than half of all participants as being useful reminders, helping them to take their medications for both conditions. These resources were described as particularly helpful for organizing medications and for facilitating medication taking consistently as prescribed.

Several participants separately described apps that facilitate both medication taking and lifestyle management for T2DM. A few others noted that the act of taking their HIV medication, subsequently reminds them to take their T2DM medications.

The Nature of the Behavior and Motivations Differed by Condition

Nature of the Behavior [Taking Medications as Prescribed]

Differences were noted in the length of time participants reported following their current HIV regimens compared to their T2DM regimens. For HIV, most reported they have followed the same regimen of one or two pills for six or more years. During that time, the behavior formed part of their daily routines. Just over half of the participants mentioned taking more than one medication for their HIV; only one mentioned needing to take HIV medication multiple times a day. Nevertheless, participants also acknowledged missed doses, though their reasons varied widely. Sudden changes to routines, including weekend trips or nights out, were most often mentioned. A few participants each also explained that missed doses can occur if they encounter problems with pharmacy refills, stressful life events, depression, fatigue, or unwelcome side effects. Of the few who reported having no conflicts, all had low VL levels.

In contrast to the length of time participants reported following their current HIV regimens, a majority reported following their T2DM regimens for five years or less. Nearly all participants reported taking more than one T2DM medication; just over half reported needing to take T2DM medications multiple times a day. Furthermore, while occasional missed doses were also noted for T2DM medications, most often participants attributed this to an initial adjustment period, with fewer participants suggesting persistent challenges. Challenges mentioned included adjustment to complex regimens, often requiring multiple dosages per day, and the onset of new side effects. Of note, among the several participants who reported no conflicts taking their T2DM medications, all had high HbA1c levels.

Motivation and Goals for Medication Adherence

Most participants revealed that a desire to maintain health motivates them to adhere to their medications, though differences were noted by condition. When asked about motivations for HIV medication adherence, some participants explained they were motivated by important people in their lives, including family, friends, partners, and health care providers. Some specified they would like to be present for significant life events of loved ones, while others noted a desire to prevent HIV transmission to partners.

In contrast, when asked what motivates adherence to T2DM medications, some participants described a desire to avoid diabetes-related complications, as well as a desire to reduce or avoid additional medications. A fear of potential amputations, loss of eyesight, and the need to self-administer insulin shots, were all specifically noted.

Managing Both Conditions is Possible and Important, Though T2DM is More Difficult

Most participants reported that managing HIV+T2DM together is something they have accepted and something they feel capable of doing. Some attributed these beliefs to the fact that they could see or feel the benefits of their regimens.

> … Well, I can't say I'm jumping for joy…but I am in full acceptance of both of them [HIV and T2DM]. My life is better when I manage my diseases better – without question – and that is always something that sticks with me. (PID 30, high HbA1c)

In other instances, participants noted how managing their comorbid conditions had become "second nature" to them, a "routine" part of their lives that keeps them feeling well:

> By now, I'm used to [it]… It becomes a second nature. If I feel good, I go, 'Well, it's because I'm taking my medications correctly. (PID 14, high HbA1c)

When asked how they prioritize their conditions, half of all participants reported that they perceived HIV and T2DM as equally important; managing both conditions, they explained, helped with their goals of maintaining health and avoiding complications. Nevertheless, there were some participants who viewed one condition or the other as the most important to them, largely due to worry about potential complications or immediate health effects. Of those, an equal number of participants viewed either HIV or T2DM as the most important to them.

> With HIV, I'm undetectable. I know it may be doing some damage to my body, but it's not affecting my health as much as the diabetes is. (PID 29, high HbA1c)

When asked which condition was most difficult to manage, most participants revealed that T2DM was most difficult for them, either because of necessary lifestyle modifications or regimen complexity.

> …I basically think there are more— I'm taking four [T2DM] medications. As I said, insulin is one of them, and it's three times a day… HIV is one pill and I'm done. (PID 32, high HbA1c)

As described by this participant, management of T2DM often required more complex regimens than HIV.

Discussion

In this theory-informed qualitative study conducted among older adults living with HIV+ T2DM, we identified and compared perceived determinants of medication adherence. We also examined how participants prioritized their conditions. Despite the fact that our sample was largely comprised of White males, results from our study are similar to those presented in recent systematic reviews, including one comparing self-management strategies for HIV+T2DM among Black women,[10] and another identifying strategies to enhance medication adherence, generally, among older adults.[26]

Participants in our study reported feeling confident in their abilities to adhere to their medications, explaining that medication taking has formed part of their daily routines. However, it is important to note that all participants also had some clinical indication of potential adherence challenges. Moreover, several participants reported having no conflicts taking their T2DM medications, and yet they had high HbA1c levels. There are a few potential reasons for this. One is potential cognitive difficulties. It may be that those who are having trouble remembering to take their medications are also having trouble remembering to report their adherence challenges. Another potential reason is challenges with lifestyle modifications. It may be that individuals are taking their medications as prescribed, though their diets comprise foods high in glycemic index, or they have challenges exercising and maintaining optimal lifestyles. Nevertheless, results from our study suggest self-reported confidence, alone, or perceptions of one's own behavior may not be sufficient facilitators of medication adherence.

Participants also identified general and disease specific consequences of non-adherence. And while some revealed that medication taking invoked no real emotion for them, a slight majority reported that taking their medications as prescribed invoked positive emotions about self-management. These determinants could be used to inform gain and loss-framed educational messages, both of which have been found to successfully modify health behaviors among individuals living with chronic conditions.[27]

Most participants in our study also acknowledged using a variety of resources such as pill boxes and alarms to facilitate medication adherence, regardless of the condition; some also noted that the act of taking their HIV medications subsequently reminded them to take their T2DM medications. These facilitators are important, as results from numerous studies have supported the effectiveness of pill boxes,[28] and intervention studies have demonstrated that text messaging reminders can improve medication adherence, including among older adults living with HIV.[29,30] Qualitative studies among older adults with HIV and other chronic conditions have additionally identified that taking medication for an index condition (such as HIV) can serve as a reminder to take medications for other, additional, chronic conditions.[31]

However, our study also demonstrated important differences in determinants of medication adherence for HIV and T2DM. These largely hinged on two TDF domains: 1) nature of the behavior and 2) motivation and goals. Most participants reported a longer duration of time following their HIV medication regimens compared to their T2DM medication regimens; this likely impacts their abilities to establish effective medication taking routines for their T2DM medications. Furthermore, many participants suggested either that their T2DM regimens are more complex than their HIV regimens, or that the side effects are more difficult to manage. Clinicians may need to provide additional early support to aging individuals who are not only increasing the number of medications they take, but also the complexity of their regimens. This is particularly the case for T2DM, as the progressive nature of the condition means treatment regimens are likely to change with time.

While participants generally recognized health maintenance as a motivator for medication adherence, they also revealed disease-specific motivators. For HIV medication adherence, some participants explained they were motivated by important people in their lives to take their medication and maintain health. For T2DM, however, participants largely reported being motivated to avoid having to take additional medications or endure potential complications. Motivational interviewing within the context of clinical care could tease out these differences and facilitate enhanced medication adherence among older adults with multiple chronic conditions, including during early adjustment periods following a new diagnosis.[32,33]

Our study also explored how participants prioritized their conditions. Results revealed HIV and T2DM were perceived by many to be of equal importance. However, most participants perceived T2DM to be more difficult to manage, explaining that lifestyle modifications and complex medication regimens are challenging. This was likely reflective of the higher prevalence of HbA1c levels >7.5% in our study sample. Nevertheless, limited studies have examined these perceptions and results could inform intervention studies to support self-management and medication adherence among individuals with multiple conditions.

This study is not without limitations. We conducted a qualitative, cross-sectional study; as such, our results are not generalizable. Furthermore, despite our recruitment efforts, our study sample lacked the racial and ethnic diversity reflected in the HIV epidemic in the United States. That said, the study sample is reflective of the patient population at the large, participating academic health center. Finally, we should note that while all participants in our study had some clinical indication of medication adherence challenges in the past year, most were high HbA1c measures as opposed to high VL levels. This, too, is reflective of the patient population at the participating health center.

Conclusions

As individuals living with HIV age, they are likely to develop other chronic health conditions; we can no longer consider HIV in a silo.[34] Some health conditions, such as T2DM, may be more complex or difficult to manage in comparison to HIV. Additional support for self-management may be required; this includes the need to provide early adherence support for new medications. Furthermore, while many determinants of medication adherence for T2DM may be similar to those for HIV, health care providers should explore the possibility that motivations to take medications may differ by condition. Understanding these differences can lead to more effective support strategies.

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Disclosure

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