





# Factors Impacting ART Adherence among HIV-Positive Older Adolescents and Younger Adults in Namibia: A Qualitative Analysis

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## Abstract:

**Background:** Namibia, like many sub-Saharan African countries, faces the challenges of Human Immunodeficiency Virus (HIV) and Acquired Immunodeficiency Syndrome (AIDS) affecting diverse age groups. However, the demographic group of older adolescents and younger adults, specifically those aged 15-24, faces distinct challenges in terms of psychological, sociocultural, and healthcare-related factors that impact their adherence to Antiretroviral Treatment (ART). It is important to conduct further research to investigate these specific challenges and address them effectively.

**Aim:** This paper aimed to investigate factors impacting adherence to ART medication among Older Adolescents (OA) and Younger Adults Living with HIV (YALHIV) in the seven high-burden regions in Namibia.

**Objective:** The objective of this study was to explore and describe the factors that influence adherence to ART medication among older adolescents and younger adults living with HIV to provide valuable insights to inform the development of evidence-based HIV programs that can effectively address the adherence challenges in this particular population.

**Methods:** A qualitative descriptive phenomenology research design was followed, utilising an in-depth interview to capture the experiences of older adolescents and younger adults living with HIV. Participants were recruited from healthcare facilities across Namibia, ensuring a diverse sample in terms of gender, socio-economic status, and urban-rural representation. A purposive sampling technique was employed to select 29 participants who were willing to take part in the study and data saturation was achieved with this sample size. The interviews were telephonically recorded with the permission of the participants. The researcher used Colaizzi's six steps for phenomenological study to analyze the data.

**Results:** The study reveals four main themes that contribute to adherence issues in OALHIV and YALHIV and include patients-related factors, family-related factors, facility and healthcare providers-related factors, and community and socio-cultural characteristics-related factors.

**Conclusion:** The study sheds light on factors affecting adherence to ART among OALHIV and YALHIV. It emphasizes the necessity of comprehensive interventions addressing personal, sociocultural, economic, and healthcare challenges for their well-being. Future research and policies should focus on tailored interventions based on these diverse findings.

**Keywords:** Adherence, Impact, Older adolescents, HIV positive, Viral load suppression, Younger adults.

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## 1. INTRODUCTION

Young People Living with HIV (PLHIV) represent a progressively significant subgroup within the global PLHIV community [1]. The rise in Human Immunodeficiency (HIV) prevalence among Older Adolescents Living with HIV (OALHIV) and Younger Adults Living with HIV (YALHIV) is of concern [2]. This prevalence can be attributed to perinatal infections, with a notable survival rate due to improved access to Antiretroviral (ART). Additionally, the increased incidence of HIV in these age groups is linked to risky behaviors [3]. Despite the effective implementation of ART leading to a substantial 43% decrease in overall AIDS-related deaths, there has been a concerning trend in Eastern and Southern Africa.

In the past decade, AIDS-related deaths among adolescents and young PLHIV have seen an increase, as compared to adults, with adolescents at two-fold higher risk compared to Younger adults, highlighting a specific challenge in this demographic age despite the overall progress in combating the disease [4, 5]. Globally, in 2022, 39 million (33.1 million–45.7 million) PLHIV, with 1.3 million (1 million–1.7 million) new Human Immunodeficiency Virus (HIV) cases reported [5]. Over the past decade, there has been a notable 46% reduction in new HIV infections among individuals aged 15-24, although global progress towards meeting the set targets for this age group remains insufficient [6].

The Joint United Nations Programme on HIV/AIDS (UNAIDS) has set an ambitious goal to end AIDS by 2030 [3]. In December 2020, UNAIDS introduced new targets, aiming for 95% of all PLHIV to be aware of their status, 95% of those diagnosed to receive continuous Antiretroviral Therapy (ART), and 95% of individuals on ART to achieve Viral Load Suppression (VLS) by 2030 [7]. However, OALHIV and YALHIV demonstrate poor ART adherence, retention in care, and VLS compared to adults living with HIV, and this affects the country reaching the UNAIDS set targets [8, 9]. Adherence is the primary determinant of VLS, the risk of transmission, disease progression, and mortality rates. Achieving optimal suppression requires a high adherence rate of 95% or more. This is essential to prevent complications such as drug resistance and treatment failure, which may require expensive and complex medication regimens to achieve VLS [10].

This poor adherence issue coincides with rapid physical, physiological, and psychological changes typical of adolescents and youth [10]. These changes not only influence the behaviour of young individuals but also pose additional complexities for the healthcare system in addressing their specific healthcare needs in the context of HIV management [4]. Hence, healthcare providers and adolescents and young individuals living with HIV must be aware of the factors impacting adherence to ART medication. Understanding these factors is crucial for a holistic case management strategy that effectively addresses the unique challenges to ART adherence and VLS [11].

The age groups have shown elevated instances of inadequate adherence to ART medication and virologic failure when contrasted with both children and adults [12,13]. Adherence estimates for OALHIV and YALHIV have varied widely, ranging from 16 to 99%. However, there is a deficiency of high-quality studies exploring this particular topic [14,15]. Numerous socioeconomic and cultural factors have been identified as contributors to the suboptimal outcomes in HIV treatment of OALHIV and YALHIV [16]. These factors encompass inadequate family support, suboptimal adherence, stigma and discrimination, limited access to food, non-disclosure of HIV status, unfriendly school or healthcare settings, peer-related influences, and the challenges associated with being at a young age [16, 17].

Lastly, other crucial factors, including co-infection with Tuberculosis (TB), mental health issues, unpredictable transitions of adolescents living with HIV across various care clinics, and service provision that lacks a patient-centered approach, have been associated with poor adherence [18]. Nevertheless, it is crucial to consider the factors that contribute to inadequate adherence to ART medication, specifically within the context of Namibia.

Despite the development and implementation of various strategies, there are still existing gaps that need to be addressed. In Namibia, the current national ART guidelines advocate for addressing PLHIV experiencing high viral loads through a multi-step approach. This involves initiating Enhanced Adherence Counseling (EAC) as the first step, followed by a subsequent viral load retesting [19]. Moreover, the guidelines suggest that if the viral load remains consistently high, it is advisable to consider changing the ART regimen to improve treatment effectiveness [19]. However, it is worth exploring adherence issues as viral load levels remain high in this age group. The adherence to these guidelines in routine program conditions is uncertain. Consequently, it is essential to map out all the factors impacting adherence to ART medication, including the health system factors.

As a results, due to the above-identified research gaps, there is a lack of adherence interventions specifically designed for OALHIV and YALHIV. Furthermore, in contrast to research conducted in studies from high-income countries [20], reviews of adherence interventions in Sub-Saharan Africa (SSA) have primarily analysed interventions intended for adults [21, 22]. Adult interventions presuppose a degree of independence that many OALHIV and YALHIV have yet to attain [22, 23], interventions aimed at these age groups are likely to under-utilize their growing autonomy, often concentrating on the involvement of caretakers or healthcare providers instead [23].

The current interventions, which are not specifically tailored to this age group, might still effectively involve youth in care, a question that hasn't been addressed by previous reviews. Therefore, the primary objective of this research was to explore and describe the factors impacting adherence to ART medication among OALHIV and YALHIV in the seven high-burden regions in Namibia.

## 2. MATERIALS AND METHODS

### 2.1. Study Design

A qualitative descriptive phenomenological research design was followed to capture the lived experiences and views of OALHIV and YALHIV receiving ART treatment regarding the factors impacting adherence to ART medication. The descriptive phenomenology design stands out as a frequently employed methodology in qualitative research across the social and health sciences. It elucidates the way individuals undergo a specific phenomenon under examination, offering a detailed account of their experiences [24, 25].

### 2.2. Study Setting

A significant proportion of PLHIV is located in the northern regions and peri-urban zones characterized by lower socio-economic status, such as Ohangwena, Oshana, Omusati, Oshikoto, and Zambezi, in contrast to the more urbanized central area, specifically Khomas, in the country. The study was conducted in the above six regions in Namibia with a special focus on their seven high-burden districts. These seven high-burden districts collectively represent 70% of the total population within these age groups. Participants were recruited during clinical review and treatment with the use of WhatsApp, email, or cell phone depending on their preferred method of communication with the facility, obtained from the information system. The data collection commenced in November 2022 and was completed in May 2023.

### 2.3. Study Population and Sample Size

The study population consists of the individuals to whom the study findings can be generalized or transferred. It represents the main group that the research primarily addresses [26]. The population of this study included all OALHIV and YALHIV in the seven high-burden districts. A total of  $n=29$  participants participated in the study, and saturation was reached with this sample. Saturation serves as the criterion to determine when to conclude sampling for various groups essential in supplying information. It indicates that no further data are being discovered [27]. Participants were eligible for the study if they were aged between 15 and 24 years, had been on ART treatment for over 12 months, and had at least one viral load test result.

### 2.4. Sampling Method

The selection of the seven high-burden districts was determined on purpose as they involve a high concentration of OALHIV and YALHIV. Purposive sampling, or judgment sampling, involves deliberately choosing participants based on specific characteristics and qualities they possess [26]. This selection ensures an ample supply of rich information regarding factors impacting adherence to ART and VLS. The selection criteria for this study focused on key capabilities and characteristics, leveraging the wealth of information participants possessed regarding their experiences as beneficiaries of health services.

### 2.5. Data Collection Method

In this study, data collection was performed with In-depth Interviews (IDIs) conducted by trained assistant researchers from each of the seven high-burden districts. IDI is a qualitative research method characterized by conducting thorough individual interviews with a limited number of participants to investigate their viewpoints on a specific concept, program, or situation [28]. In-depth interviews prove valuable when seeking detailed insights into an individual's thoughts and behaviours or when delving deeply into novel issues [28]. Participants were reached through cell phone communication, with requests to participate conveyed *via* emails and WhatsApp. Appointments were scheduled with those meeting the eligibility criteria, and consent was obtained from those willing to take part in the study.

Following their familiarisation with In-depth Interviews (IDIs) during the pilot study, the research assistants proceeded to conduct telephonic interviews in English, which were recorded for this study. A piloting interview was used first, and some adjustments were made and questions rephrased. The main study excluded both the data and participants involved in the pilot study. A significant portion of the interviews was dedicated to building trust with the participants, creating an environment where they felt comfortable opening up and sharing their experiences. The interviews lasted approximately 20- 30 minutes on average. Information from participants was collected using the key informant interview guide. The interviews were recorded, and supplementary field notes were taken during the interviews.

### 2.6. Data Management and Analysis

The skilled and experienced research assistant transcribed the recorded interviews verbatim after data collection. The transcripts underwent multiple readings for data familiarization and analysis by the primary author. The primary author held a medical degree, a Master of Public Health, and a postgraduate diploma in family medicine. The primary author was employed as a deputy chief clinical mentor for HIV response at the national Ministry of Health office. The second author, who has expertise in mixed methods, critically reviewed the collected data and the process of data analysis to ensure its rigor. None of the authors had any patient-provider or supervisory relationships that could have influenced the IDI. Both authors had extensive experience in both qualitative and quantitative data collection and analysis. The participants recognized the primary author as a student and researcher.

The researcher used Colaizzi's steps for phenomenological study to manually analyze the data. In total, 56 codes were identified, and subsequent merging into categories which generated 20 subthemes. These were then summarized into four overarching themes. The thematic analysis, involving familiarisation with the data, generating initial codes, searching for themes, reviewing the themes, and defining and naming the themes, was

conducted [29]. The analysis was conducted based on the major themes from the information gathered during the interviews.

The research team actively practiced reflexivity, by identification and intentional separation of personal assumptions, beliefs, behaviors, and positions that could potentially influence both the research process and the study's outcomes. Reflexivity served as a mechanism for self-awareness, ultimately enhancing the trustworthiness, accuracy, and openness of qualitative research [28, 29].

### 2.7. Trustworthiness in Qualitative Research

Ensuring trustworthiness is crucial in qualitative research to address potential bias and establish the credibility, reliability, dependability, conformability, and transferability of the findings, which increases the validity and rigor of the study [30-33]. Various strategies and techniques were employed to achieve trustworthiness. To enhance credibility, researchers engaged in prolonged conversations for extended periods, typically ranging from 30 minutes to 45 minutes, with participants to develop a profound understanding of their experiences and context.

Transferability was enhanced by providing detailed and comprehensive descriptions of the research context, participants, and data collection process. This allowed readers to assess the applicability of the findings to other similar situations. Dependability was established through meticulous documentation of the research process,

including data collection, analysis, and interpretation. This documentation created an audit trail, enabling the research to be replicated or reviewed by others. Additionally, the first researcher presented the findings to a second researcher for validation, further enhancing dependability. Confirmability was achieved through member checking, where participants were allowed to review and provide feedback on the findings, ensuring accuracy and minimizing researcher bias. Researchers also maintained reflexivity by acknowledging and documenting their own biases and perspectives that may have influenced the research process and findings.

## 3. RESULTS

### 3.1. Characteristics of Participants

A total of n=29 OALHIV and YALHIV participated in the study. The age range of older adolescents and younger adults living with HIV in our study was 16 to 24 years, with a median age of 21 years. The majority of participants (65.5%) fell into the category of younger adults living with HIV. The youngest participant was 16 years old, while the oldest was 24 years old. Females outnumbered males, who accounted for 65.5% and 34.5%, respectively. Regarding the start of ART, the older adolescents and younger adults living with HIV initiated treatment between 2003 and 2019, with 62% beginning before 2010, as summarized in Table 1.

**Table 1. Study participants' characteristics.**

#	Participant Code	Category	Current Age (in years)	Gender	ART Start (year)	Regions
1.	P01	YALHIV	23	Female	2005	Oshana
2.	P02	YALHIV	23	Female	2003	Oshana
3.	P03	YALHIV	22	Male	2009	Ohangwena
4.	P04	YALHIV	23	Female	2005	Oshana
5.	P05	YALHIV	22	Female	2006	Khomas
6.	P06	YALHIV	23	Female	2012	Khomas
7.	P07	YALHIV	23	Female	2007	Omusati
8.	P08	YALHIV	21	Male	2016	Omusati
9.	P09	OALHIV	19	Female	2010	Oshikoto
10.	P10	YALHIV	24	Female	2014	Oshikoto
11.	P11	YALHIV	23	Female	2007	Zambezi
12.	P12	OALHIV	17	Female	2014	Khomas
13.	P13	YALHIV	24	Female	2005	Zambezi
14.	P14	YALHIV	24	Male	2007	Omusati
15.	P15	YALHIV	24	Female	2019	Oshikoto
16.	P16	OALHIV	19	Male	2007	Ohangwena
17.	P17	OALHIV	18	Male	2009	Oshana
18.	P18	OALHIV	19	Male	2004	Omusati
19.	P19	OALHIV	17	Female	2016	Ohangwena
20.	P20	YALHIV	24	Female	2017	Zambezi
21.	P21	YALHIV	22	Female	2017	Zambezi
22.	P22	OALHIV	18	Male	2006	Omusati
23.	P23	YALHIV	23	Female	2004	Zambezi
24.	P24	OALHIV	16	Female	2014	Khomas
25.	P25	YALHIV	23	Male	2009	Khomas

(Table 1) contd....

#	Participant Code	Category	Current Age (in years)	Gender	ART Start (year)	Regions
26.	P26	YALHIV	20	Male	2005	Omusati
27.	P27	OALHIV	19	Female	2008	Oshana
28.	P28	OALHIV	19	Female	2004	Oshikoto
29.	P29	YALHIV	20	Male	2016	Ohangwena

**Table 2. Theme and sub-themes of factors impacting adherence and viral load suppression.**

Theme	Sub-themes
1. Patient-related factors	1.1. Being the only one with HIV in the family 1.2. Forgetfulness 1.3. Living without biological parents 1.4. Mental health 1.5. No disclosure of own HIV status to the partner 1.6. Self-stigma 1.7. Substance abuse 1.8. Young age and ignorance
2. Family-related factors	2.1. Inadequate disclosure of HIV from family 2.2. Inadequate guardians or family support 2.3. Lack of transport 2.4. Poverty and lack of food
3. Facility and healthcare providers-related factors	3.1. Facility process and patient flow 3.2. Healthcare providers' attitudes and skills 3.3. Inadequate disclosure of HIV status 3.4. Inadequate psychosocial support 3.5. Multidisciplinary team approach
4. Community's sociocultural characteristics-related factors	4.1. Boarding school is not a conducive place to take ART medication 4.2. Stigma and discrimination in the community 4.3. Inadequate knowledge about HIV in the community

**3.2. Factors Impacting ART Adherence**

The study revealed four themes: patient-related factors, family-related factors, facility and healthcare providers-related factors, and community's sociocultural characteristics-related factors, as summarized in Table 2.

**3.2.1. Theme 1: Patient-related Factors**

The study participants revealed patient-related factors pertaining to diverse elements linked to an individual's traits, behaviours, and situations that can influence their capacity to reliably adhere to prescribed medications. These factors encompass a wide range of elements, including:

**3.2.1.1. Being the Only One with HIV in the Family**

Participants highlighted that being the only individual in their family living with HIV has an impact on their adherence to ART medication. This circumstance is linked to potential challenges, such as inadequate support and experiences of discrimination. One of the participants quoted as follows:

"For example, if you were born with six siblings and you are the only one who is positive. That is possible. Those other five will treat you like you are not their siblings or cousins, just like you are nobody because you are HIV positive. As for them, they are healthy and will try to abuse you. If you are a firstborn, the mother will also abuse you and say what are you doing? Go drink your medication. Yeah, those kinds of bad words are not supportive." (P29S401)

**3.2.1.2. Forgetfulness**

Participants mentioned that the occasional lapses in taking their ART medication occur due to forgetfulness on their part caused by the psychological stress of having the disease. Some had the following to say regarding forgetfulness:

"Sometimes it is just that I used to forget to take my medication that is what is affecting my adherence. I used to take my medication at seven in the morning and seven in the evening and sometimes in the evening, I do not manage to take them at the right time because sometimes you can go out somewhere and when you come it is already eight or nine." (P027S421)

**3.2.1.3. Mental Health**

Participants emphasized that their dedication toward adhering to ART medication is impacted by their mental health. They consistently experience stress and anxiety regarding the progression of their infection, which is exacerbated by the stigma and discrimination associated with the disease. This circumstance contributes to heightened forgetfulness and diminishes their engagement in care. One of the participants had the following to say in this aspect:

"I had never had a situation where my adherence was affected, but there was a time when I was just tired of taking the medication due to a friend that passed on. That kind of thing made me depressed a little bit, but my viral loads did not really go high, and there were times when I would skip a day without taking my medication. But yeah,

I went past through it. Like I said, talking to your friend, talking to the health care worker, and someone I trusted, and they helped me to get back on track". (P19S250)

#### **3.2.1.4. No Disclosure of HIV Status to the Partner**

Certain participants emphasized that they have not revealed their HIV status to their partners, impacting their ability to consistently take their daily medication when in the presence of their partners. Some of the participants shared their views as quoted below:

"Maybe I find myself in a new relationship; it is really hard for me to disclose to that partner. That is the only thing that can make me interrupt my medication." (P20S264)

#### **3.2.1.5. Self-stigma**

Participants expressed concerns about self-stigma, as they believed they faced rejection from their community or environment, even though this perception might not accurately reflect reality. One of the participants quoted as follows:

"Firstly, I would say stigma. If you are not open with yourself and you are always asking yourself a lot of questions, you will feel like even if you are taking the medication, it will not take you far with it will not help you. You end up having high viral loads". (P22S294)

#### **3.2.1.6. Substance Abuse**

Participants revealed that substance abuse, including the use of drugs and alcohol, impeded their adherence to ART medication. This behavior resulted in a loss of self-control, which they attributed to peer group pressure and a desire to fit in and conform to the groups. This view was highlighted by some participants as follows:

"To talk of peer pressure, some youth and teens look at what other peers are doing and do the same. There is also alcohol. Some are drinking alcohol because of peer pressure and at the end of the day, they end up missing their doses when they are drunk. This also affects adherence". (P27S372)

#### **3.2.1.7. Living without Biological Parents**

Participants disclosed that they lacked support from their biological parents due to various circumstances, such as death, separation, abandonment, neglect, or divorce. As a result, some of these individuals were placed under the care of other family members, such as grandmothers or aunts, who assumed the role of caregivers. One participant expressed the following:

"Sometimes when a person is staying in a house where both parents are not alive, those people suffer because people nowadays do not care about other people's lives. We are facing a lot of challenges, especially when people start shouting some words. Those words can lead to people committing suicide in today's time". (P28S388)

#### **3.2.1.8. Young Age and Ignorance**

Participants expressed that their younger age and lack of awareness have contributed to poor adherence, as they

were not initially educated about HIV and the importance of consistent medication. This lack of knowledge may be associated with difficulties in disclosing their HIV status, leading to a gap in understanding and subsequent challenges in adhering to treatment. One of the participants quoted as follows:

"There was a time when I was young in the north; I used to bury my medication because I did not like taking my medication. So yeah, I used to bury them under the ground and then my sister reported me to my mom, and then I stopped doing it." (P13S171)

### **3.2.2. Theme 2: Family-related Factors**

Participants disclosed that family-related factors play a crucial role in adherence to ART medication. These factors encompass a range of influences that stem from the patient's familial environment and can have an impact on their ability to consistently adhere to prescribed medication and follow medical advice. These factors include the following:

#### **3.2.2.1. Inadequate Disclosure of HIV from Family**

Participants disclosed that their parents or guardians did not sufficiently inform them about HIV and ART medication. Additionally, these individuals reported that their guardians instructed them to take their medicines for the sake of maintaining good health without providing comprehensive information. Some of the participants' statements are displayed below.

"After that, my grandfather took care of me. For all those years, people did not tell me about the purpose of the medication. They only kept telling me it was because of the sore that I was having in my head." (P16S207)

#### **3.2.2.2. Inadequate Guardians or Family Support**

Participants emphasized that the support they received from their parents or guardians was insufficient, with some even experiencing rejection or abandonment and being entrusted into the care of their grandmothers. One participant revealed the following:

"I think it is different with people, but with stress from school, that affects the adherence. If the person does not receive support from home, that also hinders adherence, if the person has faced discrimination before. I think those three things are stress, lack of support, and when a person is being stigmatized or discriminated." P19S251

#### **3.2.2.3. Lack of Transport**

Participants expressed their sadness and disappointment about the lack of support from guardians or family members, particularly in terms of transportation assistance. They shared that they did not receive sufficient help with transportation, which resulted in them having to walk long distances to reach the health facility. Eventually, this lack of support led to discouragement and affected their commitment to follow-up appointments. Some of the participants give the following statements:

"There is an issue with transport to come to the facility to collect ART. It is a bit challenging for us to share medication because the medication is given according to

the person's weight. "(P11S89)

"When I do not have taxi money to go for my follow-ups, that is all." (P17S218)

#### **3.2.2.4. Poverty and Lack of Food**

Participants disclosed that, in addition to transportation challenges, their families faced poverty, making access to food difficult. This economic hardship further posed a challenge for them to take their daily medication on an empty stomach. Participants' statements were as follows:

"I did not drink my medication because sometimes there was no food in the house and I used to drink alcohol." (P14S183)

"Uhm... the only time I remember not taking my medication was because I did not have much food. So, I ended up not taking them because they used to make me sleep." (P04S51)

#### **3.2.3. Theme 3: Facility and Healthcare Providers-related Factors**

Participants highlighted that facility and healthcare provider-related factors significantly impact adherence to prescribed medication. These factors encompass various aspects within the healthcare system and the behaviour or attitude of healthcare providers, which directly influence the participants' ability to adhere to their medication regimen. These factors include:

##### **3.2.3.1. Facility Process and Patient Flow**

Participants underscored that the setup, process, and flow of the health facility discouraged their daily attendance. They also expressed concerns about being mixed with adults or spending excessive time at the health facility, which conflicted with other commitments, such as attending school. One of the participants described this situation as follows:

"It can be the facility set up if the ART consultation room or department is excluded from others. If the people know that this department is for ART and they see you going there, they automatically know you are on ART. Even people from your area will see you in that queue, and sometimes you have to stop going to the facility". (P18S230)

##### **3.2.3.2. Healthcare Providers' Attitudes and Skills**

Participants indicated that negative attitudes from healthcare professionals have discouraged them from consistently adhering to their medication. Additionally, some participants expressed reservations about the efficiency of healthcare providers in managing their care. The quotes below were expressed by some participants:

"Firstly, someone will shout at you. secondly, they will not give you chance to talk, and thirdly, I will not even talk, I will not even say a word. I will just go home with my poor adherence." (P02S24)

##### **3.2.3.3. Inadequate Disclosure of HIV Status**

Participants reported that the disclosure of their HIV status was not handled appropriately, and some only learned about their status accidentally. Many were initially informed about different diseases by their guardians instead of being directly told about HIV. This inadequate disclosure created tension with their guardians, further impacting their medication adherence. Some participants have highlighted this aspect through the quote below.

"Yes, because at that time, it was very, very difficult to understand that medication because my parents died. My mother died when I was born, and they were taking care of my father, and then my father passed away in 2017. After that, my grandfather took care of me. For all those years, people did not tell me about the purpose of the medication. They only kept telling me it was because of the sore that I was having in my head. I kept on taking them until I realized that this time I was feeling now, let me just stop taking them. After that, I realized that I was in the hospital, hospitalized for two months for HIV". (P1S207)

##### **3.2.3.4. Inadequate Psychosocial Support**

Participants reported that the psychosocial support they received at their healthcare facility was insufficient, lacking comprehensive information on HIV, adherence, viral load suppression, and sexual reproductive health. One participant highlighted this in the quote below:

"That time when I was not in any club like a teen cub. It was hard for me because I thought I was the only adolescent who was living with HIV. Sometimes, I used to go visit my aunt, and when I went to her house, I left my medication behind. So, when I am there, I do not take. That led me to poor adherence. When I was introduced to the teen club, I met a lot of people, and I did not discriminate or distance myself from the others but just to move on. That medication is helping me to live, and go somewhere in the future. So, I must take my medication seriously. That is what I have noticed". (P20S203)

##### **3.2.3.5. Multidisciplinary Team Approach**

Healthcare providers may assume that a multidisciplinary approach effectively addresses adherence. However, participants strongly conveyed their discomfort in interacting with multiple people. They expressed a preference for one-on-one interactions and satisfaction in talking to a single person at a time, with a preference for speaking to a social worker, followed by a medical doctor and nurses. Some of the participants had the following to say:

"I was scared, and I will not be happy because those people are a lot and I do not know how to explain to them." (P06S81)

"My opinion on this is that it is not safe because I cannot feel comfortable sharing my problems with all those people. Unless it could have only one person in a room..." (P19S261)

### **3.2.4. Theme 4: Community Sociocultural-related Factors**

The study revealed that the community's sociocultural factors influencing adherence arise from the broader social and cultural context in which they reside. These factors have been found to significantly affect the participants' ability and willingness to consistently follow prescribed medication regimens for managing their condition; these factors include the following:

#### **3.2.4.1. Boarding School is not a Conducive Place to Take ART Medication**

Participants who attended schooling in a boarding school environment reported that it was not conducive for them to adhere to their daily medication. They found the boarding school to lack confidentiality and noted the presence of peer pressure, which negatively impacted their ability to maintain consistent medication habits. Participants have expressed the following:

"Uhhh... it was difficult when I was in high school. That is where the bad adherence comes in because of the situation where we are living in a room where there are a lot of people. For me to take my medication is so difficult. I end up some days taking it, and some days not taking it because some people would be so suspicious." (P01S07)

"There was a day when there was a learner who was in grade 7, but she knew why I was taking my medication. So, she went around telling people about my medication and all that I am on treatment. I stopped going to the pharmacy..." (P05S65)

#### **3.2.4.2. Stigma and Discrimination in the Community**

Participants emphasized that stigma and discrimination in the community continue to be significant issues, posing a challenge to their medication adherence. The fear of being identified as individuals living with HIV hinders their commitment to honour appointments and adhering to medication regimens. One participant highlighted the following:

"Most of us have not yet accepted our HIV positive status, and there is a lot of stigma and discrimination in the community. Some of us do not open up at home and people do not know if we are taking ART medication or not. Some believe in churches and traditional doctors". (P11S148)

#### **3.2.4.3. Inadequate Knowledge about HIV in the Community**

Participants expressed concerns about the lack of information and inadequate knowledge within the community regarding HIV. The perception of HIV as a death sentence contributes to increased stigma and discrimination and makes disclosure more challenging for OALHIV and YAL HIV. A quote from one participant is provided below.

"For example, people in the community are still having the understanding that HIV is a killing virus and is a killing disease. When people were talking about that,

especially me, at that time, I felt like it was my dead end, I had no way to survive because I was living with HIV. For now, I do understand it, but people in the community are still lacking that information". (P08S105)

## **4. DISCUSSION**

The study has revealed important findings regarding the adherence to ART among OALHIV and YALHIV in Namibia's seven districts with high HIV burden. These noteworthy challenges have been examined and categorized into four main themes, namely factors related to the patients themselves, their families, the communities they live in, and the healthcare system. These factors have been reported to be interconnected and contribute to inadequate adherence, reduced retention, and disengagement from treatment. In 2018, Humphrey *et al.* [34] conducted a study in Sierra Leone that corroborated the factors identified in this study's findings. These factors can be effectively addressed through the development of an HIV program specifically tailored to meet the unique needs of this age group. It is evident from this study's findings that OALHIV and YALHIV exhibit personal factors that directly affect their adherence [35, 36]. These findings correlate with the studies conducted by Opoku *et al.* in 2022 in Malawi and Lahai *et al.* in 2023 in Sierra Leone [13, 37]. They reported that OALHIV and YALHIV also experience factors influenced by external conditions closely associated with them. Furthermore, Chirambo *et al.* (2019) [38] and Nantambi (2023) [39] in their studies, conducted in Uganda, emphasized in their respective studies that patient-related factors, including forgetfulness, mental health issues, and substance abuse, play a significant role in contributing to suboptimal adherence to treatment. Additionally, Wadunde *et al.* (2018) [40] conducted another study that revealed additional independent factors contributing to poor adherence in this age group. These factors have been reported to include living without biological parents or being the only person in the family with HIV, leading to a lack of support and fear of disclosing their HIV status. During adherence counseling and support, it is crucial to highlight and give particular attention to these concerns.

These age groups continue to rely on their families, requiring sustained support that includes psychosocial, physical, material, and financial aspects. The findings of this study align with a report from the South African Department of Health, which emphasizes the need for professional psychosocial support [41]. Additionally, Nabunya *et al.* (2020) [36] conducted a study that further confirmed the significant role of the family in providing treatment adherence support to this age group, regardless of their HIV status. A study conducted in Cape Town by Van Wyk *et al.* (2019) [42] emphasized that the absence of family support is exacerbated by escalating poverty, limited access to food, and transportation difficulties. These challenges should be addressed proactively and effectively. Furthermore, these findings correlate with those obtained in a study carried out in Malawi and Uganda [37, 39]. Nevertheless, the study by Nabunya *et*



al. (2020) [36] underscored that certain family-related challenges, such as incomplete disclosure of HIV status and inadequate support tailored to the unique needs of these age groups, have a further impact on their adherence. These findings are consistent with a study conducted in India by Verma *et al.* (2020) [8], which discovered that factors influencing adherence among children living with HIV include financial difficulties faced by parents or caregivers, long distances to healthcare facilities, and unavailability of parents or caregivers. Addressing these factors necessitates the provision of professional social assistance and guidance.

The study findings indicate that individuals in this age group predominantly rely on local public health facilities to access healthcare services. However, they frequently encounter challenges and issues related to these facilities and the healthcare system, which affects their adherence. The findings from this study were corroborated by a study conducted by Munyayi *et al.* (2022) [43] in Windhoek. The study highlighted that this age group has low VLS due to poor adherence and inadequate monitoring systems at the facility level. Consequently, there are delays in switching to appropriate treatment regimens, emphasizing the need for interventions to address these issues. Despite the provision of free HIV care services, the setup of healthcare facilities and the behaviour of healthcare providers themselves are influential factors that impact adherence among individuals living with HIV [39]. Other studies conducted in Rwanda have outlined issues with the facility setup, noting that it is not conducive or accommodating for the beneficiaries [44, 45]. These findings have been reinforced by a study conducted in Malawi and Rwanda, which emphasized the concerns raised by this age group regarding unfriendly facility environments or processes that fail to adequately address their needs. These factors can contribute to longer waiting times, potentially affecting adherence to HIV care [46, 47]. Apart from the facility setup, a scoping review conducted by Kvarnström *et al.* (2012) [46] demonstrated that healthcare attitudes, the implementation of a multidisciplinary approach, and insufficient psychosocial support and guidance regarding disclosure all have significant impacts on poor adherence. These findings align with studies conducted in Malawi and Kenya, emphasizing the need for policymakers, healthcare administrators, and providers to play essential roles in implementing strategies that improve adherence [48]. The Ministry of Health, with support from the stakeholders can develop supportive approaches that facilitate adherence at the facility level and build the capacity of healthcare providers on professionalism [42, 48].

Wondimu *et al.* (2021) [49] revealed that stigma persists in certain communities due to inadequate knowledge about HIV. This issue remains a significant concern that needs to be addressed. A study conducted in the southwest of Ethiopia and Saudi Arabia identified a general knowledge gap and negative attitudes among the general public towards PLHIV. This highlights the need for educational awareness efforts to address these issues [49, 50]. Some communities still embrace outdated beliefs,

viewing HIV as a disease of shame and a death sentence [42]. Conversely, for those OALHIV and YALHIV who attend school and reside in boarding facilities, this environment poses challenges for daily ART medication adherence and exposes them to peer pressure [51, 52]. It is essential to create an environment that supports OALHIV and YALHIV adherence to ART medication in the community, including the school environment. There is a need for collaborative partnerships between healthcare providers, community organizations, and local stakeholders for the implementation of strategies to enhance adherence to ART medication at the community level.

## 5. STRENGTHS AND LIMITATIONS OF THE STUDY

The research was carried out specifically among OALHIV and YALHIV in the high-burden districts of Namibia, and as a result, the findings are only applicable within that particular context and cannot be extrapolated to other areas. In general, qualitative studies are not designed for generalization. Moreover, the experiences and difficulties encountered by individuals with HIV can vary significantly across age groups or areas with a lower HIV burden. However, the study's findings offer valuable insight into the current situation and can serve as a foundation for developing HIV programs aimed at enhancing adherence and achieving viral load suppression among these age groups.

## CONCLUSION

This analysis contributes to the growing body of knowledge surrounding HIV treatment adherence and VLS among older adolescents and younger adults living with HIV in Namibia. By uncovering the interconnected challenges faced by this demographic group, the study provides an opportunity to design targeted interventions that can significantly impact the health and well-being of individuals living with HIV. As Namibia and other countries continue their efforts to combat the HIV epidemic, acknowledging and addressing the unique needs of older adolescents and younger adults are crucial. The findings from this study can inform policymakers to guide the development of effective strategies to improve adherence, achieve VLS, and ultimately enhance the overall quality of life of individuals living with HIV in this demographic group.

## LIST OF ABBREVIATIONS

AIDS	=	Acquired immunodeficiency syndrome
ART	=	Antiretroviral therapy
EAC	=	Enhanced adherence counselling
HIV	=	Human immunodeficiency virus
OALHIV	=	Older adolescents living with HIV
PLHIV	=	People living with HIV
YALHIV	=	Younger adults living with HIV
VLS	=	Viral load suppression

## ETHICS APPROVAL AND CONSENT TO PARTICIPATE

The research study obtained approval from relevant institutions, such as the University of South Africa's research ethics committee with reference number 12786918\_CREC\_CHS\_2021 and the Ministry of Health and Social Services' research ethics committee with reference number 17/3/3/JK.

## HUMAN AND ANIMAL RIGHTS

No animals were used in this research. All procedures performed in studies involving human participants were in accordance with the ethical standards of institutional and/or research committees and with the 1975 Declaration of Helsinki, as revised in 2013.

## CONSENT FOR PUBLICATION

A written informed consent was obtained from all study participants for interviews, audio recording, and the publication of anonymized responses.

## STANDARDS OF REPORTING

STROBE guidelines were followed.

## AVAILABILITY OF DATA AND MATERIALS

The data supporting the findings of the study can may made available upon request to the corresponding author [S.M].

## FUNDING

None.

## CONFLICT OF INTEREST

The authors declare no conflict of interest, financial or otherwise.

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