


Review

# Facilitators and Barriers to Antiretroviral Therapy Adherence Among Adolescents and Young Adults in Sub-Saharan Africa: A Scoping Review

Enos Moyo <sup>1,\*</sup>, Perseverance Moyo <sup>2</sup>, Hadrian Mangwana <sup>3</sup>, Grant Murewanhema <sup>4</sup>  
and Tafadzwa Dzinamarira <sup>5</sup>

<sup>1</sup> School of Nursing & Public Health, College of Health Sciences, University of Kwa-Zulu Natal, Durban 4000, South Africa

<sup>2</sup> Medical Centre Oshakati, Clinical Department, Oshakati 15001, Namibia

<sup>3</sup> Project Hope Namibia, Windhoek 10005, Namibia

<sup>4</sup> Faculty of Medicine and Health Sciences, Department of Adolescent and Women's Health, University of Zimbabwe, Harare 00001, Zimbabwe; gmurewanhema@gmail.com

<sup>5</sup> Faculty of Health Sciences, School of Health Systems and Public Health, University of Pretoria, Pretoria 0001, South Africa

\* Correspondence: moyoenos@yahoo.co.uk

**Abstract: Background:** Globally, approximately 65% of adolescents undergoing antiretroviral therapy (ART) adhered to their treatment, whereas only 55% achieved viral suppression in 2023. The low rate of viral suppression is concerning, as elevated viral loads are associated with a heightened risk of opportunistic infections, progression to advanced HIV disease, increased mortality, and greater HIV transmission rates. We conducted this scoping review to identify the facilitators and barriers to ART adherence among adolescents and young adults (AYAs) in sub-Saharan Africa (SSA). **Methods:** We conducted this scoping review following the Preferred Reporting Items for Systematic Reviews and Meta-Analysis extension for Scoping Reviews (PRISMA-ScR) checklist. We searched for peer-reviewed articles published in English from 2014 to 2024 across the SCOPUS, ScienceDirect, PubMed, Africa Journals Online, and Google Scholar databases. Two reviewers independently selected the articles and extracted the data. We used NVivo to develop codes and categories of facilitators and barriers. **Results:** We used 30 articles reporting on studies conducted in 13 countries in this review. The total number of participants in the studies was 12,250. Sixteen articles reported on qualitative studies, nine on quantitative studies, and five on mixed-methods studies. This scoping review identified various personal (14 articles), interpersonal and social (15 articles), healthcare system-related (9 articles), medication-related (7 articles), and economic (2 articles) factors that facilitate ART adherence among AYAs. Additionally, the scoping review also identified various personal (28 articles), interpersonal and social (13 articles), healthcare system-related (14 articles), medication-related (20 articles), school- or work-related (6 articles), and economic (14 articles) factors that hinder ART adherence among AYAs. **Conclusions:** Enhancing ART adherence in AYAs requires multiple strategies, including the reduction of internalized stigma, implementation of community awareness campaigns, harm reduction approaches for AYAs who misuse substances, comprehensive education on HIV, and the provision of support from school staff and leadership, alongside the adoption of differentiated service delivery (DSD), which encompasses home-based ART delivery, refills at private pharmacies, community ART distribution centers, and patient-led community ART refill groups, as well as multi-month dispensing practices.

**Keywords:** adolescents and young adults (AYAs); adherence; antiretroviral therapy; facilitators; barriers; sub-Saharan Africa



Received: 22 December 2024

Revised: 26 March 2025

Accepted: 28 March 2025

Published: 31 March 2025

**Citation:** Moyo, E.; Moyo, P.; Mangwana, H.; Murewanhema, G.; Dzinamarira, T. Facilitators and Barriers to Antiretroviral Therapy Adherence Among Adolescents and Young Adults in Sub-Saharan Africa: A Scoping Review. *Adolescents* **2025**, *5*, 10. <https://doi.org/10.3390/adolescents5020010>

**Copyright:** © 2025 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

## 1. Introduction

Since the onset of the HIV epidemic, numerous individuals have contracted the virus, and a considerable number have succumbed to HIV-related illnesses. By the end of 2023, nearly 40 million individuals were living with HIV [1]. Most people living with HIV (PLHIV) worldwide reside in sub-Saharan Africa (SSA) [1]. Significant advancements have been achieved in mitigating the impacts of HIV. In 2023, 89% of PLHIV worldwide who were aware of their status were receiving antiretroviral therapy (ART), with approximately 93% of this group achieving viral suppression [1]. Significant gains were observed in SSA. HIV-related mortality in SSA decreased by approximately 55% from 2010 to 2023. In 2023, approximately 12 million individuals worldwide were diagnosed with advanced HIV disease, predominantly among PLHIV who had discontinued treatment [1].

The achievements in viral suppression vary across different age groups in SSA. A study from 2023 indicated that approximately 65% of adolescents undergoing ART adhered to their treatment, whereas only 55% achieved viral suppression [2]. The low rate of adherence to ART can lead to inadequate viral suppression. The low rate of viral suppression is concerning, as elevated viral loads are associated with a heightened risk of opportunistic infections, progression to advanced HIV disease, increased mortality, and greater HIV transmission rates [1]. The risk of HIV transmission is elevated in this age group and can extend to other age groups due to insufficient condom use among adolescents and young adults (AYAs). From 2018 to 2022, the prevalence of condom use among adolescent girls and young women aged 15 to 24 during their last sexual encounter with a non-regular, non-cohabiting partner was merely 32% [1]. Non-adherent AYAs are more likely to increase HIV transmission when they do not use condoms because they will have a high viral load. There is an urgent necessity for effective interventions and support to retain AYAs in ART care and to re-engage those who have defaulted, thereby preventing transmission.

Adherence to ART can be assessed through various methods, such as self-reports, pill counts, pharmacy refills, viral load testing, medication event monitoring systems, and drug level measurements. Although self-reports, pill counts, and pharmacy refills are cost-effective methods, they fail to assess the actual ingestion of medications accurately. Despite its high cost, viral load testing presents the most objective approach to evaluating adherence [3]. Measuring the adherence rate among AYAs is essential to assess the magnitude of the problem, facilitating the formulation and implementation of appropriate interventions.

Previous studies have identified various facilitators and barriers to ART adherence among AYAs. Studies outside SSA, such as one in Peru, have identified similar barriers, including side effects and lack of support. Conversely, peer support, future aspirations, and declining health facilitated adherence [4]. Factors influencing ART adherence among adolescents in SSA include stigma and discrimination, side effects, drug stockouts at health-care facilities, and peer pressure [2]. AYAs are vulnerable to non-adherence to ART due to factors such as a strained relationship with teachers, challenges related to school or work, and a lack of social support [5,6]. Additionally, the pressure of school and work demands can result in AYAs forgetting to take their ART medications [5]. Considering the low rates of ART adherence and condom use among AYAs, which may lead to HIV transmission both within this demographic and beyond, it is crucial to identify the facilitators and barriers to ART adherence in SSA. We conducted this scoping review to identify the facilitators and barriers to ART adherence among AYAs in SSA. Identifying facilitators and barriers from several studies may improve the validity of the results, thereby allowing the development of targeted strategies to overcome the barriers while reinforcing the facilitators.

## 2. Methodology

### 2.1. Study Design

We conducted this scoping review following the Preferred Reporting Items for Systematic Reviews and Meta-Analysis extension for Scoping Reviews (PRISMA-ScR) checklist. We did not register the study with any scoping review register nor perform any evidence grading.

### 2.2. Research Question

We used the problem–interest–context (PICO) framework to formulate the study questions. We identified the problem as ART adherence, the interest as AYAs, and the context as SSA. The research question we sought to answer was as follows:

What factors facilitate or hinder ART adherence among AYAs in SSA?

### 2.3. Inclusion Criteria

This review encompasses primary qualitative, quantitative, and mixed-methods studies conducted in SSA that examined facilitators and barriers to ART adherence among AYAs, published in English from 2014 to 2024.

### 2.4. Exclusion Criteria

We excluded scoping reviews, systematic reviews, meta-analyses, and opinion articles from this review. We excluded these studies since we wanted to focus on analyzing primary evidence and using the reviews to compare with our findings.

### 2.5. Literature Sources and Search Strategy

We searched for peer-reviewed articles published in English from 2014 to 2024 across the SCOPUS, ScienceDirect, PubMed, Africa Journals Online (AJOL), and Google Scholar databases. We searched all databases from 25 to 30 November 2024. The literature search utilized keywords such as ‘antiretroviral therapy’, ‘facilitators’, ‘enablers’, ‘barriers’, ‘challenges’, ‘adolescents’, ‘young adults’, ‘sub-Saharan Africa’, and all nations within SSA. We used Boolean operators ‘AND’ and ‘OR’ to restrict or broaden our literature search. Supplementary Table S1 contains additional details regarding the PubMed search strategy. We exported full-text articles of studies that met the inclusion criteria to ENDNOTE [7], which facilitated the removal of duplicate articles. We assessed the reference lists of the full-text articles remaining after removing duplicate articles to identify any relevant studies that we potentially overlooked in the initial search. Two reviewers (EM and PM) independently evaluated the titles and abstracts of the remaining studies. The two reviewers compared their findings and addressed any discrepancies. A third reviewer (HM) was engaged for arbitration when the two reviewers could not agree.

### 2.6. Data Extraction

We developed a tool to assist with data extraction. We performed a pilot test of the data extraction tool to evaluate its adequacy in the two included studies. Following the independent data extraction from the included studies, two reviewers (EM and PM) compared their findings. The two reviewers revisited the articles in instances of differing conclusions to achieve consensus. When the two reviewers reached a disagreement, they sought the opinion of a third reviewer (HM) for adjudication. The extracted data from each study encompass the first author, publication year, country of study, research method, study design, participant age group, sample size, data collection method, data analysis methods, and findings.

## 2.7. Data Synthesis

Upon familiarizing ourselves with the data, we exported them into NVivo version 20 for analysis. We used NVivo to develop codes and categories, and its relationships module was used to group the codes into similar concepts of facilitators and barriers to ART adherence among AYAs. All authors discussed their relevance to the study following the generation of codes and categories. In instances of disagreement, we engaged in discussions regarding the differences until we achieved a consensus. The discussions confirmed that all generated categories accurately represented the findings and addressed the research questions. We presented the findings from the included studies in narrative form.

## 3. Results

### 3.1. Search Results

A total of 1025 articles were retrieved from the searched databases. The majority of articles were sourced from PubMed (n = 452), whereas the fewest were obtained from African Journals Online (AJOL) (n = 41). After eliminating duplicates (n = 482), a total of 543 articles remained. Of these, 508 were excluded due to their classification as opinion articles or systematic reviews and meta-analyses. We excluded 5 after assessing the eligibility criteria for the remaining 35 retrieved articles. One excluded article [8] reported on barriers and facilitators affecting the transition of adolescents living with HIV to adult care; one reported on the acceptability of short text messages for supporting treatment adherence [9]; and three [10–12] focused on interventions to enhance adherence. Figure 1 includes more information.

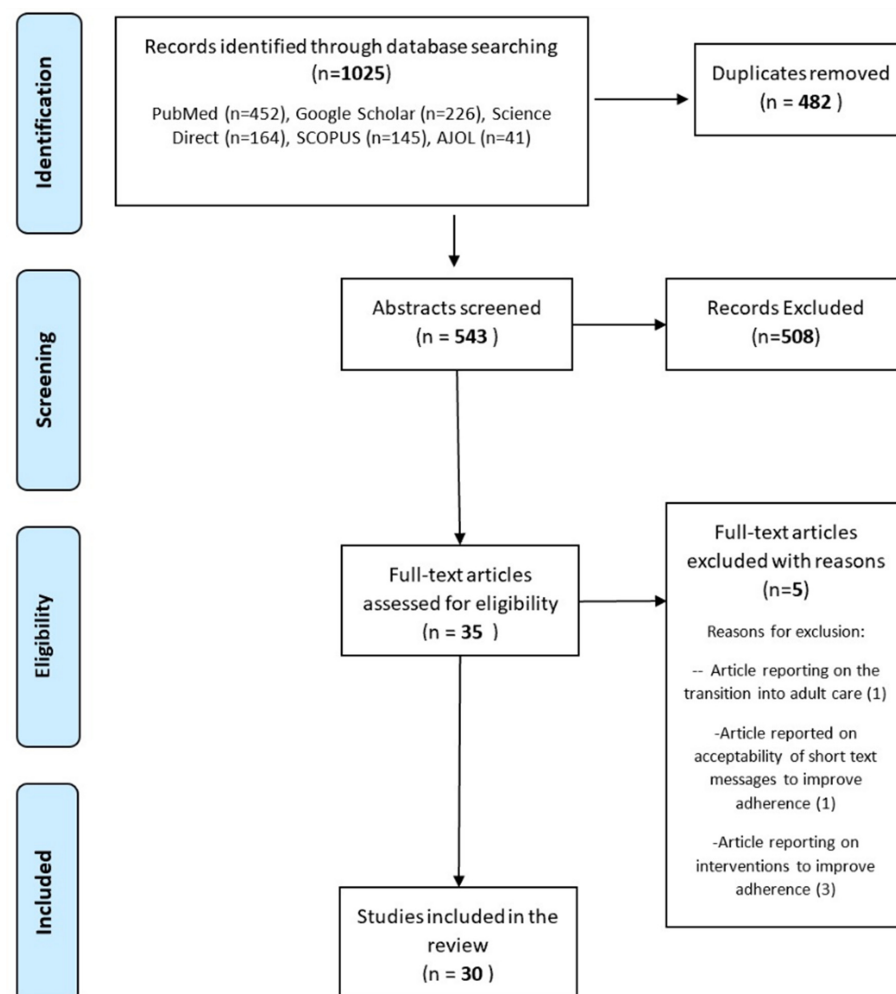


Figure 1. PRISMA flowchart.

### 3.2. Characteristics of Included Studies

Out of the included 30 articles, eight were conducted in South Africa [5,13–19], four in Uganda [20–23], three in Tanzania [24–26], three in Kenya [27–29], two in Botswana [30,31], two in Zambia [32,33], two in Nigeria [34,35], and one each in Zimbabwe [36], Malawi [37], Rwanda [38], Ghana [39], Ethiopia [40], and Namibia [41]. Sixteen of the articles reported on qualitative studies [5,14–16,20,22–24,27,29–31,33,36,39,41], nine on quantitative studies [13,17–19,26,28,34,38,40], and five on mixed-methods studies [21,25,32,35,37]. The sample size of the studies ranged from 13 [15] to 5750 [26]. Data collection methods used in the included studies were focus group discussions (FGDs), in-depth interviews (IDIs), structured questionnaires, and electronic health records (EHRs). Data analyses included statistical and thematic analyses. Table 1 contains more information.

**Table 1.** Characteristics of included studies.

First Author, Publication Year	Reference	Country Where the Study Was Conducted	Research Methodology	Participants	Summary of Findings
van Wyk BE et al., 2019	[5]	South Africa	Exploratory qualitative study using focus group discussions (FGDs) for data collection and content analysis of the data.	15 aged 10–19.	Interpersonal and social facilitators. Personal, interpersonal and social, economic, healthcare system, medication-related, and school/work-related barriers.
Nice J et al., 2024	[13]	South Africa	Quantitative Cross-sectional study using a structured self-administered questionnaire for data collection and statistical analysis of the data.	857 aged 14–24. 67% of the participants were females.	Interpersonal and social, and healthcare system facilitators. Economic barriers.
Hornsuh S et al., 2017	[14]	South Africa	Qualitative study using in-depth interviews (IDIs) and FGDs for data collection and thematic analysis of the data.	26 aged 15–25. 59.1% of the participants were females.	Personal and medication-related facilitators. Personal, interpersonal and social, and medication-related barriers.
Khangale HM et al., 2024	[15]	South Africa	Qualitative exploratory and descriptive study using IDIs for data collection and thematic analysis of the data.	13 aged 15–19.	Personal, interpersonal and social, and medication-related barriers.
Mashele V et al., 2024	[16]	South Africa	Qualitative study using semi-structured interviews for data collection and thematic analysis of the data.	12 aged 18–35.	Personal, interpersonal and social, healthcare system, and medication-related facilitators. Personal, economic, healthcare system, and medication-related barriers.

Table 1. Cont.

First Author, Publication Year	Reference	Country Where the Study Was Conducted	Research Methodology	Participants	Summary of Findings
Maskew M et al., 2016	[17]	South Africa	Quantitative prospective cohort study using structured interviewer-administered questionnaire for data collection and statistical analysis of the data.	126 aged 12–20. 56.3% of the participants were females.	Personal, economic, healthcare system, and medication-related barriers.
Mabunda K et al., 2019	[18]	South Africa	Quantitative cross-sectional study using structured interviewer-administered questionnaire for data collection and statistical analysis of the data.	281 aged 18–35. 58% of the participants were females.	Personal facilitators. Personal and healthcare system barriers.
Cluver L et al., 2021	[19]	South Africa	Quantitative prospective cohort study using standardized interviews and clinical records for data collection and statistical analysis of the data.	969 aged 10–19. 55% of the participants were females.	Interpersonal and social and health system facilitators. Healthcare system barriers.
Jjumba I et al., 2022	[20]	Uganda	Qualitative phenomenological study using IDIs for data collection and thematic content analysis of the data.	30 aged 15–24. 53% of the participants were males.	Personal, interpersonal and social, and healthcare system facilitators. Personal, healthcare system, and medication-related barriers.
Nabukeera-Barungi N et al., 2015	[21]	Uganda	Convergent mixed-methods study using retrospective record review and IDIs for data collection and Statistical and thematic analyses of the data.	1824 adolescents (ages not specified). 62.6% were females.	Economic, interpersonal and social, and healthcare system facilitators. Personal, interpersonal and social, economic, healthcare system, medication-related barriers.
MacCarthy S et al., 2018	[22]	Uganda	Qualitative study using FGDs for data collection and content analysis of the data.	49 adolescents (ages not specified).	Interpersonal and social facilitators. Personal, interpersonal and social, economic, school-related, and medication-related barriers.
Ajuna N et al., 2021	[23]	Uganda	Descriptive qualitative study using FGDs and thematic content analysis of the data.	23 aged 18–24. 69.6% of the participants were females	Interpersonal and social facilitators. Personal, economic, healthcare system, and medication-related barriers.
Audi C, 2021	[24]	Tanzania	Qualitative study using IDIs for data collection and Thematic analysis of the data.	33 aged 10–19. 51.5% of the participants were females.	Personal and interpersonal and social facilitators. Personal, interpersonal and social, medication-related, and economic, barriers.

Table 1. Cont.

First Author, Publication Year	Reference	Country Where the Study Was Conducted	Research Methodology	Participants	Summary of Findings
Nyogea D et al., 2015	[25]	Tanzania	Sequential explanatory mixed-methods using structured interviewer-administered questionnaires, IDIs, and FGDs for data collection and statistical analysis and thematic content analysis of the data.	116 aged 2–19. 58% of the participants were males.	Personal facilitators. Personal, interpersonal and social, healthcare system, and medication-related barriers.
Amour M et al., 2022	[26]	Tanzania	Quantitative retrospective cohort study using electronic health records for data collection and statistical analysis of the data.	5750 aged 10–24. 82.6% of the participants were females.	Personal and medication-related facilitators. Personal and medication-related barriers.
Onyango MA et al., 2021	[27]	Kenya	Qualitative study using IDIs and FGDs for data collection and thematic analysis of the data.	24 aged 15–19. 58% of the participants were males.	Personal and school-related barriers
Altamirano J et al., 2023	[28]	Kenya	Quantitative cross-sectional study using structured questionnaires for data collection and statistical analysis of the data.	309 aged 15–24. 59.9% of the participants were from rural areas.	Personal and interpersonal and social barriers.
Adams C et al., 2022	[29]	Kenya	Qualitative study using FGDs and IDIs for data collection and thematic analysis.	122 aged 15–19. 57% of the participants were females.	Personal, interpersonal and social, healthcare system, and school-related facilitators. Personal, healthcare system, and school-related barriers.
Madiba S et al., 2019	[30]	Botswana	Qualitative study using IDIs for data collection and Thematic analysis of the data.	30 aged 12–19. 57% of the participants were males.	Personal and interpersonal and social facilitators. Economic, medication-related, and school-related barriers.
Yang E et al.	[31]	Botswana	Qualitative study using FGDs and IDIs for data collection and thematic analysis of the data.	47 aged 12–19 from Gaborone.	Personal, interpersonal and social, economic, and medication-related barriers.
Mesic A et al., 2019	[32]	Zambia	Mixed-methods study using survey-based interviews, IDIs, and FGDs for data collection and statistical and thematic analyses of the data.	379 aged 17–19.	Personal, economic, and healthcare system barriers.
St Clair-Sullivan N et al., 2019	[33]	Zambia	Qualitative study using FGDs for data collection and thematic analysis of the data.	24 aged 16–24. 54% of the participants were males.	Healthcare system facilitators. Personal, interpersonal and social, and healthcare system barriers.

Table 1. Cont.

First Author, Publication Year	Reference	Country Where the Study Was Conducted	Research Methodology	Participants	Summary of Findings
Oluwole EO et al., 2023	[34]	Nigeria	Quantitative cross-sectional study using interviewer-administered semi-structured questionnaires for data collection and statistical analysis of the data.	203 aged 10–19. 53% of the participants were males.	Personal and medication-related barriers
Aderemi-Williams RI et al., 2021	[35]	Nigeria	Mixed-methods study using structured interviewer-administered questionnaires and IDIs for data collection and statistical and thematic analyses of the data.	34 aged 10–24. 52.9% of the participants were males.	Personal and interpersonal and social facilitators. Personal, interpersonal and social, and medication-related barriers.
Jopling R et al., 2024	[36]	Zimbabwe	Qualitative study using semi-structured interviews for data collection and thematic analysis of the data.	23 aged 18–29. 65% of the participants were males.	Personal, economic, healthcare system, and medication-related facilitators. Personal, economic, and healthcare system barriers.
Villiera JB et al., 2022	[37]	Malawi	Convergent parallel mixed-methods study using electronic medical records and IDIs for data collection and statistical and thematic analyses of the data.	385 aged 10–19. 53.8% of the participants were females.	Personal, interpersonal and social, and medication-related facilitators. Personal, interpersonal and social, school-related, and medication-related barriers.
Habumugisha E et al., 2022	[38]	Rwanda	Quantitative cross-sectional study using self-administered questionnaires for data collection and statistical analysis of the data	166 aged 10–19. 54% of the participants were females.	Interpersonal and social and healthcare system facilitators. Personal, healthcare system, and medication-related barriers
Ankrah DN et al., 2016	[39]	Ghana	Qualitative cross-sectional study using semi-structured interviews for data collection and thematic analysis of the data.	19 aged 12–19. 63.2% of the participants were females.	Personal, interpersonal and social, healthcare system, and medication-related facilitators. Personal, economic, and medication-related barriers.
Zurbachew Y et al., 2023	[40]	Ethiopia	Quantitative cross-sectional study using structured interviewer-administered questionnaires for data collection and statistical analysis of the data.	316 aged 10–24. 58.5% of the participants were females.	Personal, healthcare system, and medication-related facilitators. Personal, healthcare system, and medication-related barriers.
Kamangu J. et al., 2024	[41]	Namibia	Qualitative descriptive phenomenological study using IDIs for data collection and thematic analysis of the data.	29 aged 16–24. 65.5% of the participants were females.	Personal, interpersonal and social, healthcare system, economic, and school-related barriers.

### 3.3. Review Findings

Tables 2 and 3 present the findings of this scoping review. Additionally, the findings are presented in narrative form in the following sections.

**Table 2.** Facilitators from included studies.

Facilitators	Authors (References)
Personal Facilitators	
The aspiration for a long and healthy life	Hornschuh et al. [14]; Adams et al. [29]; Aderemi-Williams et al. [35]; Ankrah et al. [39]
HIV status disclosure	Mashele et al. [16]; Adams et al. [29]; Jopling et al. [36]
Acceptance of HIV status	Mashele et al. [16]; Madiba et al. [30]
Advanced HIV disease	Mabunda et al. [18]; Amour et al. [26]
Maintaining health	Audi et al. [24]; Zurbachew et al. [40]
Perceived benefits of ART	Mashele et al. [16]; Jjumba et al. [20]; Nyogea et al. [25]; Jopling et al. [36]; Ankrah et al. [39]
A younger age	Mabunda et al. [18]
Sufficient knowledge regarding treatment adherence and ART	Nyogea et al. [25]; Adams et al. [29]; Madiba et al. [30]
Being a male	Amour et al. [26]; Zurbachew et al. [40]
Fear of illness and mortality	Madiba et al. [30]
Phone-based reminders	Aderemi-Williams et al. [35]; Jopling et al. [36]; Villiera et al. [37]
Experiencing illness after ART discontinuation	Aderemi-Williams et al. [35]
Interpersonal and Social Facilitators	
Support from family and friends	van Wyk & Davids [5]; Mashele et al. [16]; Jjumba et al. [20]; Nabukeera-Barungi et al. [21]; MacCarthy et al. [22]; Ajuna et al. [23]; Audi et al. [24]; Adams et al. [29]; Madiba et al. [30]; Villiera et al. [37]; Ankrah et al. [39]
Accompaniment by an adult to the clinic	Nice et al. [13]
Absence of emotional or physical violence exposure at home	Cluver et al. [19]
Protection from stigma	Ajuna et al. [23]; Habumugisha et al. [38]
Motivation from others	Aderemi-Williams et al. [35]
Healthcare System Facilitators	
Positive attitudes of healthcare providers (HCPs)	Nice et al. [13]; Mashele et al. [16]; Jjumba et al. [20]; Nabukeera-Barungi et al. [21]; Adams et al. [29]; Jopling et al. [36]; Ankrah et al. [39]
Counseling provided by HCPs	Mashele et al. [16]
Perceived confidentiality at the healthcare facilities	Cluver et al. [19]; Jjumba et al. [20]
Short waiting time at the healthcare facilities	Nabukeera-Barungi et al. [21]
Reminders issued by healthcare facilities	Nabukeera-Barungi et al. [21]; St Clair-Sullivan et al. [33]; Jopling et al. [36]
Scheduling clinic visits during school holidays for school-going AYAs	Nabukeera-Barungi et al. [21]
The provision of laboratory results	St Clair-Sullivan et al. [33]
Facilitating access to clinic appointment times for AYAs	St Clair-Sullivan et al. [33]
Delivering health education	Habumugisha et al. [38]

Table 2. Cont.

Facilitators	Authors (References)
Medication-related Facilitators	
Reminder strategies	Hornschuh et al. [14]; Mashele et al. [16]
Concealment pill strategies	Hornschuh et al. [14]; Jopling et al. [36]
Single-pill regimens	Mashele et al. [16]
Duration on ART	Amour et al. [26]; Villiera et al. [37]
Convenient ART formulations	Ankrah et al. [39]
The absence of additional medications	Zurbachew et al. [40]
Economic Facilitators	
Providing food support and transport to the ART clinics	Nabukeera-Barungi et al. [21]; Jopling et al. [36]

Table 3. Barriers from included studies.

Barriers	Authors (References)
Personal Barriers	
Fear of stigma and discrimination	van Wyk & Davids [5]; Hornschuh et al. [14]; Khangale et al. [15]; Mashele et al. [16]; Nabukeera-Barungi et al. [21]; MacCarthy et al. [22]; Audi et al. [24]; Nyogea et al. [25]; Onyango et al. [27]; Madiba et al. [30]; Yang et al. [31]; Mesic et al. [32]; Oluwole et al. [34]; Aderemi-Williams et al. [35]; Jopling et al. [36]; Ankrah et al. [39]
Internalized stigma	Adams et al. [29]; Kamangu and Mboweni [41]
Experiencing stigma	Jjumba et al. [20]; Ajuna et al. [23]; Adams et al. [29]; St Clair-Sullivan et al. [33]; Jopling et al. [36]; Habumugisha et al. [38]; Kamangu and Mboweni [41]
HIV status non-disclosure	van Wyk & Davids [5]; Mashele et al. [16]; Ajuna et al. [23]; Audi et al. [24]; Onyango et al. [27]; Adams et al. [29]; Villiera et al. [37]; Kamangu and Mboweni [41]
Forgetfulness	Hornschuh et al. [14]; Mabunda et al. [18]; Jjumba et al. [20]; Nabukeera-Barungi et al. [21]; MacCarthy et al. [22]; Ajuna et al. [23]; Audi et al. [24]; Nyogea et al. [25]; Oluwole et al. [34]; Villiera et al. [37]; Habumugisha et al. [38]; Ankrah et al. [39]; Kamangu and Mboweni [41]
Denial and anger about the persistence of HIV into adolescence and adulthood	Hornschuh et al. [14]
Denial of HIV status	Khangale et al. [15]; Mashele et al. [16]; Audi et al. [24]; Yang et al. [31]
Age	Maskew et al. [17]; Mabunda et al. [18]; Kamangu and Mboweni [41]
Being healthy	Mabunda et al. [18]; Nabukeera-Barungi et al. [21]; Nyogea et al. [25]; Amour et al. [26]; Oluwole et al. [34]
Having tertiary education	Mabunda et al. [18];
Fear of rejection by partners	Nabukeera-Barungi et al. [21]; Jopling et al. [36]
Mental health problems	Nabukeera-Barungi et al. [21]; MacCarthy et al. [22]; Altamirano et al. [28]; Yang et al. [31]; Oluwole et al. [34]; Jopling et al. [36]; Kamangu and Mboweni [41]

Table 3. Cont.

Barriers	Authors (References)
A lack of adequate HIV knowledge	Nabukeera-Barungi et al. [21]; Audi et al. [24]; Yang et al. [31]; Clair-Sullivan et al. [33]; Oluwole et al. [34]; Jopling et al. [36]; Kamangu and Mboweni [41]
Change in daily routine	Ajuna et al. [23]; Audi et al. [24]; Oluwole et al. [34]; Jopling et al. [36]
Preference for traditional medicines	Nyogea et al. [25]
Being female	Amour et al. [26]; Zurbachew et al. [40]
Substance abuse	Altamirano et al. [28]; Yang et al. [31]; Jopling et al. [36]; Kamangu and Mboweni [41]
Having advanced disease	Zurbachew et al. [40]
Negative experiences following HIV status self-disclosure	Onyango et al. [27]
Interpersonal and Social Barriers	
Negative relationships with non-biological caregivers	van Wyk & Davids [5]
The perception that adherence disrupts normative age-related social behavior	Nice et al. [13]; Hornschuh et al. [14] Madiba et al. [30]
The desire for assimilation to avoid feeling different	Hornschuh et al. [14]
A lack of support from family and caregivers	Hornschuh et al. [14]; Jjumba et al. [20]; Ajuna et al. [23]; Madiba et al. [30]; Mesic et al. [32]; Oluwole et al. [34]; Jopling et al. [36]; Zurbachew et al. [40]
A lack of HIV status disclosure to AYAs by parents or caregivers	Khangale et al. [15]; MacCarthy et al. [22]; Nyogea et al. [25]; Aderemi-Williams et al. [35]; Kamangu and Mboweni [41]
Peer pressure	Nabukeera-Barungi et al. [21]; Villiera et al. [37]
Myths and misconceptions	Nabukeera-Barungi et al. [21]
Unstable households	MacCarthy et al. [22]
A lack of privacy	Audi et al. [24]
Living with non-parent caregivers	Nyogea et al. [25]
Intimate partner violence	Altamirano et al. [28]
Assertions of healing through religious institutions	Aderemi-Williams et al. [35]
Healthcare System Barriers	
Long distances to healthcare facilities	Mashele et al. [16]; Maskew et al. [17]; Cluver et al. [19]; Mesic et al. [32]; Jopling et al. [36]
Rural healthcare facilities	Nabukeera-Barungi et al. [21]
Long waiting times	van Wyk & Davids [5]; Mashele et al. [16]; Maskew et al. [17]; Jjumba et al. [20]; Ajuna et al. [23]; Clair-Sullivan et al. [33]; Jopling et al. [36]
Missing files at the healthcare facilities	van Wyk & Davids [5]
Negative attitudes of HCPs	van Wyk & Davids [5]; Mashele et al. [16]; Maskew et al. [17]; Jjumba et al. [20]; Adams et al. [29]; Mesic et al. [32]; Clair-Sullivan et al. [33]; Jopling et al. [36]
Shortages of medications	Mabunda et al. [18]; Jjumba et al. [20]; Ajuna et al. [23]
Undifferentiated healthcare services	Ajuna et al. [23]; Audi et al. [24]; Mesic et al. [32]; Clair-Sullivan et al. [33]; Jopling et al. [36]
Delays in healthcare facility transfers	Ajuna et al. [23]
Unfavorable opening hours	Clair-Sullivan et al. [33]

Table 3. Cont.

Barriers	Authors (References)
Fear of unintended disclosure	van Wyk & Davids [5]; Maskew et al. [17]
Non-provision of health education	Habumugisha et al. [38]
Medication-related Barriers	
Treatment fatigue	van Wyk & Davids [5]; Hornschuh et al. [14]; Maskew et al. [17]; Jjumba et al. [20]; Nabukeera-Barungi et al. [21]; MacCarthy et al. [22]; Ajuna et al. [23]; Nyogea et al. [25]; Yang et al. [31]
A dislike of tablets	Hornschuh et al. [14]; Khangale et al. [15]; Mashele et al. [16]; Maskew et al. [17]; Nabukeera-Barungi et al. [21]; Ajuna et al. [23]; Oluwole et al. [34]; Aderemi-Williams et al. [35]
Fear of side effects	Khangale et al. [15]; Mashele et al. [16]; Jjumba et al. [20]; Nabukeera-Barungi et al. [21]; Ajuna et al. [23]; Audi et al. [24]; Madiba et al. [30]; Yang et al. [31]; Oluwole et al. [34]; Aderemi-Williams et al. [35]; Ankrah et al. [39]
Complex regimens	Nyogea et al. [25]; Habumugisha et al. [38]
Longer duration on ART	Amour et al. [26]
Taking additional medication for other conditions	Villiera et al. [37]; Zurbachew et al. [40]
The high cost of ART medications	Oluwole et al. [34]
School or Work-related Barriers	
School or work commitments	van Wyk & Davids [5]; MacCarthy et al. [22]; Madiba et al. [30]; Villiera et al. [37]
Negative attitudes of teachers	van Wyk & Davids [5]
Fear of unintended disclosure	van Wyk & Davids [5]
A lack of support from school staff and restrictive policies	MacCarthy et al. [22]; Onyango et al. [27]
A lack of appropriate storage space at school	MacCarthy et al. [22]
A lack of privacy	Onyango et al. [27]; Adams et al. [29]; Madiba et al. [30]
Economic Barriers	
Employment status	Mesic et al. [32]
A lack of financial support for transport and food	van Wyk & Davids [5]; Nice et al. [13]; Mashele et al. [16]; Maskew et al. [17]; Nabukeera-Barungi et al. [21]; MacCarthy et al. [22]; Ajuna et al. [23]; Audi et al. [24]; Madiba et al. [30]; Yang et al. [31]; Mesic et al. [32]; Jopling et al. [36]; Ankrah et al. [39]; Kamangu and Mboweni [41]

### 3.3.1. Facilitators of ART Adherence

We grouped the facilitators of ART adherence among AYAs into the personal, interpersonal, social, healthcare system, medication-related, and economic factors. Facilitators of ART adherence are presented in narrative form and Table 2.

#### Personal Facilitators

Fourteen studies reported personal ART adherence facilitators in this review. The identified personal facilitators include the aspiration for a long and healthy life [14,29,35,39], HIV status disclosure [16,29,36], acceptance of HIV status [16,30], advanced HIV disease [18,26], maintaining health [24,40], and the perceived benefits of ART [16,20,25,36,39]. A study in South Africa indicated that participants desiring a future and career rather than being a statistic were more likely to adhere to ART [14]. A study in Kenya indicated that AYAs who disclosed their HIV status to family and friends received support for ART adherence [29]. A qualitative study in Botswana indicated that disclosure enabled teachers and peers to

remind students on ART to adhere to their medication schedule [30]. A study in South Africa indicated that participants who accepted their condition exhibited higher adherence to ART compared to those who did not [16], while a retrospective cohort study in Tanzania found that participants with HIV WHO stage III demonstrated greater ART adherence than those with WHO stage I disease [26]. In an Ethiopian facility-based cross-sectional study, healthy participants demonstrated a higher likelihood of ART adherence [40], while a Ugandan study indicated that the perception of ART's efficacy served as a facilitator for adherence [20].

Additional personal facilitators included younger age [18], sufficient knowledge regarding treatment adherence and ART [25,29,30], being male [26,40], fear of illness and mortality [30], phone-based reminders [35–37], and experiencing illness after ART discontinuation [35]. A study conducted at a hospital HIV clinic in South Africa found that younger adolescents exhibited higher ART adherence than older adolescents [18]. A mixed-methods study in Tanzania indicated that participants aware of the significance of ART adherence were more likely to follow their treatment regimen [25]. Additionally, research in Ethiopia found that males exhibited higher adherence rates to ART than females [40]. A study in Botswana identified fear of illness and mortality as a motivator for ART adherence [30], and one study conducted in Malawi reported better ART adherence among participants who used phone reminders since mobile phones are widely available [37].

#### Interpersonal and Social Facilitators

In this review, fifteen studies reported interpersonal and social facilitators to ART adherence among AYAs. The identified interpersonal and social facilitators include support from family and friends [5,16,20–24,29,30,37,39], accompaniment by an adult to the clinic [13], the absence of emotional or physical violence exposure at home [19], protection from stigma [23,38], and motivation from others [35]. A qualitative study conducted in South Africa indicated that social support from family, particularly siblings and friends, enhanced adherence to ART [5]. A descriptive qualitative study conducted in Uganda revealed that certain relatives and parents shielded young adults living with HIV from stigma by employing strategies such as non-disclosure to potentially hostile family members, concealing their ART, facilitating private adherence to ART, and offering discreet moral and financial support [23].

#### Healthcare System Facilitators

Nine studies reported health system facilitators to ART adherence. The identified facilitators include the positive attitudes of healthcare providers (HCPs) [13,16,20,21,29,36,39], counseling provided by HCPs [16], perceived confidentiality at healthcare facilities [19,20], short waiting times at healthcare facilities [21], reminders issued by healthcare facilities [21,33,36], and scheduling clinic visits during school holidays for school-going AYAs [21]. Additional identified factors within the healthcare system comprise the provision of laboratory results [33], facilitating access to clinic appointment times for AYAs [33], and delivering health education [38]. A study in Zambia indicated that presenting AYAs with their laboratory results promoted ART adherence. The same study indicated that assigning appointment dates to AYAs decreased the likelihood of attending the clinic on incorrect days, minimizing unnecessary transportation and food expenses [33].

#### Medication-Related Facilitators

In this review, seven studies reported medication-related facilitators to ART adherence among AYAs. The identified medication-related facilitators include reminder strategies [14,16], concealment pill strategies [14,36], single-pill regimens [16], duration on ART [26,37], convenient ART formulations [39], and the absence of additional medi-

cations [40]. Reminder strategies encompass mobile phone and clock alarms, medication charts, and family and friends' support [14,16]. A study conducted in South Africa indicated that AYAs at boarding schools concealed their medications in papers or provided excuses during medication times [14]. Conflicting evidence exists regarding the impact of AYAs' duration of ART adherence and their adherence to ART. A Tanzanian study indicated a shorter duration as a facilitator [26], whereas a Malawian study found a longer duration as a facilitator [37]. A study conducted in Ghana indicated that AYAs preferred tablets over syrups, and the transition to liquid formulations enhanced ART adherence among participants [39]. An Ethiopian study indicated that AYAs who exclusively used ART medications demonstrated higher ART adherence than those who also took additional medications [40].

#### Economic Facilitators

Only two studies reported economic facilitators to ART adherence among AYAs. The identified economic facilitators were providing food support and transport to the ART clinics [21,36].

#### 3.3.2. Barriers to ART Adherence

We grouped AYA's barriers to ART adherence into personal, interpersonal, and social, healthcare system, medication-related, school- or work-related, and economic barriers. Barriers to ART adherence are presented in narrative form and Table 3.

#### Personal Barriers

Twenty-eight studies reported personal barriers to ART among AYAs. The personal barriers include fear of stigma and discrimination [5,14–16,20–22,24,25,27,30–32,34–36,39], internalized stigma [29,41], experiencing stigma [20,23,29,33,36,38,41], HIV status non-disclosure [5,16,23,24,27,29,37,41], forgetfulness [14,18,20–25,34,37–39,41], denial and anger about the persistence of HIV into adolescence and adulthood [14], denial of HIV status [15,16,24,31], age [17,18,41], being healthy [18,21,25,26,34], and having tertiary education [18]. A Kenyan study revealed that internalized stigma adversely impacted the mental health of AYAs, contributing to low self-esteem and, subsequently, poor ART adherence [29]. One study in Zimbabwe revealed that AYAs living with HIV were occasionally subjected to mockery and perceived as having diminished worth due to their HIV status [36]. A South African study revealed that certain AYAs failed to adhere to ART due to feelings of denial and anger related to the ongoing presence of HIV, despite previous adherence during childhood. Conflicting evidence exists regarding the impact of age on ART adherence. While studies conducted in South Africa [17,18] reported that older adolescents were less likely to adhere to ART, a study conducted in Namibia [41] revealed that younger adolescents were less likely to adhere to ART. A study conducted in Tanzania indicated that certain AYAs ceased adherence to ART after experiencing an improvement in their health, which diminished their motivation to continue medication [25].

Other personal barriers include fear of rejection by partners [21,36], mental health problems [21,22,28,31,34,36,41], a lack of adequate HIV knowledge [21,24,31,33,34,36,41], change in daily routine [23,24,34,36], preference for traditional medicines [25], being female [26,40], negative experiences following HIV status self-disclosure [27], substance abuse [28,31,36,41], and having advanced disease [40]. A Kenyan study revealed that AYAs experiencing moderate to severe depression were over three times more likely to exhibit ART non-adherence than those with no or minimal depression [28]. One study conducted in Uganda revealed that alterations in daily routines, including visiting relatives, attending ceremonies, and changing or acquiring employment, were associated with ART non-adherence among AYAs [23]. In a Kenyan study, school-going AYAs reported several

negative experiences, including breaches of confidentiality, bullying by teachers and peers, social isolation, ridicule, and the end of friendships [27]. AYAs experiencing opportunistic infections demonstrated lower adherence to ART in a study conducted in Ethiopia [40].

### Interpersonal and Social Barriers

Thirteen studies reported interpersonal and social barriers to ART adherence among AYAs. The interpersonal and social barriers include negative relationships with non-biological caregivers [5], the perception that adherence disrupts normative age-related social behavior [13,14,30], the desire for assimilation to avoid feeling different [14], a lack of support from family and caregivers [14,20,23,30,32,34,36,40], a lack of HIV status disclosure to AYAs by parents or caregivers [15,22,25,35,41], peer pressure [21,37], and myths and misconceptions [21]. A South African study revealed that some AYAs did not consistently adhere to ART when attending parties where alcohol was consumed, based on the belief that ART should not be taken in conjunction with alcohol [14]. A study conducted in Namibia revealed that some AYAs failed to adhere to ART due to a lack of communication from their parents or guardians regarding their HIV status and the necessity of ART medication [41]. A study conducted in Malawi indicated that AYAs engaged in romantic relationships due to peer pressure, which led to concealing or discontinuing their ART medications [37]. A Ugandan study identified several myths and misconceptions, including the belief that ART is lethal or excessively potent, leading to worsened health conditions [21].

Additional interpersonal and social barriers included unstable households [22], a lack of privacy [24], living with non-parent caregivers [25], intimate partner violence [28], and assertions of healing through religious institutions [35]. A Ugandan study revealed that AYAs who experienced transitions between guardians following parental death demonstrated lower ART adherence. This was attributed to certain guardians being uninformed about the ART medications being administered to the AYAs [22]. A study in Tanzania revealed that adolescents in boarding schools exhibited lower adherence to ART due to the absence of private spaces for medication intake, which prevented them from taking their medication discreetly [24]. According to a Tanzanian study, AYAs living with non-parent caregivers exhibited lower ART adherence due to reduced support compared to that available from their biological parents [25]. A Kenyan study revealed that AYAs who experienced intimate partner violence were nearly twice as likely to be non-adherent to ART compared to their counterparts who had not experienced such violence [28].

### Healthcare System Barriers

In this review, 14 studies reported health system barriers to ART adherence. These barriers include long distances to healthcare facilities [16,17,19,32,36], rural healthcare facilities [21], long waiting times [5,16,17,20,23,33,36], missing files at healthcare facilities [5], negative attitudes of HCPs [5,16,17,20,29,32,33,36], and shortages of medications [18,20,23]. A Ugandan study revealed that AYAs receiving ART from rural healthcare facilities demonstrated lower adherence rates than their counterparts obtaining ART from urban healthcare facilities [21]. Some AYAs in a South African study reported that they did not receive their ART medications because their files were missing at the healthcare facilities [5]. A Kenyan study reported that ART non-adherence among AYAs was worsened by the cold and unsympathetic behavior of HCPs [29]. AYAs who participated in a Ugandan study revealed that they were sometimes non-adherent because they could not receive their medications because the hospitals had run out of the drugs [20].

Additionally, other identified barriers encompassed undifferentiated healthcare services [23,24,32,33,36], delays in healthcare facility transfers [23], unfavorable opening hours [33], fear of unintended disclosure [5,17], and non-provision of health education [38].

A Ugandan study revealed that AYAs exhibited ART non-adherence due to their reluctance to collect medication from adult clinics, stemming from concerns about being identified as HIV-positive [23]. The same Ugandan study also revealed that some AYAs missed their medications for several days while processing their transfers from one facility to another [23]. Participants of a Zambian study reported that they missed doses due to healthcare facilities' operating hours coinciding with their class schedules, which hindered their ability to collect medications during the week [33]. A South African study revealed that adolescents often neglected to take their medication due to concerns about being identified as HIV-positive when visiting ART clinics [17]. Participants in a Rwandan study revealed that HCPs failed to provide sufficient ART information, leading to missed doses [38].

#### Medication-Related Barriers

Twenty studies reported medication-related barriers to ART adherence among AYAs. These barriers include treatment fatigue [5,14,17,20–23,25,31], a dislike of tablets [14–17,21,23,34,35], fear of side effects [15,16,20,21,23,24,30,31,34,35,39], complex regimens [25,38], longer duration on ART [26], taking additional medication for other conditions [37,40], and the high cost of ART medications [34].

#### School- or Work-Related Barriers

In this review, six studies reported school- or work-related barriers to ART adherence among AYAs. These barriers include school or work commitments [5,22,30,37], negative attitudes of teachers [5], fear of unintended disclosure [5], a lack of support from school staff, restrictive policies [22,27], a lack of appropriate storage space at school [22], and a lack of privacy [27,29,30]. A South African study revealed that the clash between school obligations and clinic appointments negatively impacted ART adherence among AYAs [5]. The same South African study also reported that AYAs missed their medication doses due to concerns that repeated requests for permission to attend healthcare appointments could lead to unintended disclosure of their HIV status [5]. Some participants in a Kenyan study revealed that some teachers and school staff disclosed their HIV status without their consent, while others reported that some schools did not allow medications in dormitories and they needed permission to leave the classroom to take their medications [27].

#### Economic Barriers

Fourteen studies reported economic barriers to ART adherence among AYAs. These barriers include employment status [32] and a lack of financial support for transport and food [5,13,16,17,21–24,30–32,36,39,41]. A study in Tanzania revealed that AYAs postponed refilling their ART due to insufficient funds for transportation to healthcare facilities and a lack of food necessary for medication intake [24].

## 4. Discussion

This scoping review identified various personal, interpersonal, social, healthcare system, medication-related, school- or work-related, and economic factors that facilitate or hinder ART adherence among AYAs. This review revealed that acceptance and disclosure facilitated ART adherence. The findings align with a systematic review conducted in Ethiopia, which indicated that disclosure enhances the likelihood of ART adherence compared to non-disclosure [42]. Disclosure can facilitate social support for AYAs, potentially leading to improved ART adherence. Family members and friends can provide social support by reminding AYAs to take their medications on schedule and to collect their prescriptions as they near completion [43]. Additionally, disclosure may enhance mental health [44], a critical factor influencing ART adherence.

This review revealed the perceived usefulness of ART and sufficient knowledge regarding ART and treatment adherence as factors that facilitate adherence among AYAs. The findings were corroborated by a prior systematic review conducted in SSA [45]. A comprehensive understanding of ART provides AYAs with essential information regarding the drugs' mechanisms of action, expected side effects, and implications of non-adherence. This information may encourage AYAs to maintain adherence to prevent the repercussions of non-adherence. Additionally, providing sufficient information can address myths and misconceptions regarding ART [46].

This review identified the positive attitudes of healthcare providers, perceived confidentiality, and short waiting times at healthcare facilities as facilitators of ART adherence among AYAs. Similar findings were reported in a study conducted in South Africa [47]. Studies conducted in Peru and Cambodia reported that patients satisfied with healthcare service quality are more likely to adhere to their medications [4,48]. Medication-related facilitators of ART adherence identified in this review include pill concealment strategies, single-pill regimens, a longer ART duration, convenient ART formulations, and the absence of additional medications. A study in SSA among adults also revealed similar findings [49]. A French study also showed that there was better adherence to single-pill regimens compared to multiple-pill regimens [50]. Longer ART duration may improve adherence due to greater understanding and techniques to incorporate ART into daily life and better side effect management. Single-pill regimens may increase adherence due to convenience.

This scoping review identified stigma and discrimination as barriers to ART adherence among AYAs. A study in SSA [2] and another outside SSA conducted in Thailand [43] reported similar results. Stigma and discrimination can influence how AYAs living with HIV view themselves, their choices regarding the disclosure of their HIV status, and, consequently, their ART adherence. Fear of stigma and discrimination may arise from beliefs linking HIV to moral and sexual deviance. Additionally, stigma and discrimination may arise from the observation of individuals living with HIV experiencing stigmatization and discrimination [51].

This review identified the quality and accessibility of care at healthcare facilities and ART medications as factors influencing ART adherence. A study in Russia reported analogous findings [52]. Poor quality of care can encompass negative attitudes of HCPs, extended waiting periods, inconvenient clinic hours, and the absence of youth-friendly services [53]. AYAs are less inclined to revisit healthcare facilities that do not provide good care, leading to non-adherence to ART [48]. This review identified pill burden as a barrier to ART adherence; however, this issue may diminish as current ART regimens increasingly prioritize single-pill combinations [54]. AYAs may be unable to obtain ART medications from distant healthcare facilities due to insufficient funds for transportation [55]. This situation is exacerbated by their reliance on parents and caregivers, who may also face financial difficulties.

This review identified school- or work-related determinants of ART adherence among AYAs that align with findings from another review conducted in SSA [2]. Negative attitudes among school staff may hinder AYAs from requesting permission to attend their appointments, leading to non-adherence to ART. A lack of privacy in boarding schools may inhibit AYAs from adhering to their medication regimens due to concerns about unintended disclosure, potentially resulting in stigma and discrimination. School policies that prohibit medications in hostels may necessitate the disclosure of HIV status by AYAs, which they may be reluctant to do, resulting in non-adherence [56].

Interventions at the individual level aimed at reducing internalized stigma among AYAs living with HIV encompass health education, economic strengthening, social empowerment, and cognitive behavioral therapy [57]. Social empowerment can be facilitated

through skills that enable AYAs to mobilize and assert their rights. A study among Thai youth revealed a significant increase in ART adherence after five social empowerment sessions [58]. Economic strengthening must incorporate savings schemes, nutritional support, and income-generating activities [57]. A South African study revealed a significant increase in ART adherence among adolescents after improved economic well-being [59]. Awareness campaigns at the community level can effectively address myths and misconceptions regarding HIV, thereby reducing stigma and discrimination [60]. It is advisable to provide harm reduction strategies to AYAs who misuse alcohol and other substances to promote ART adherence. Harm reduction strategies encompass rehabilitation, needle exchange programs, and the provision of social and psychological support. AYAs with mental health issues should be referred for psychological or psychiatric assistance [46]. A South African study observed improved ART adherence among adolescents who received psychosocial support [61].

School personnel and leadership should possess a comprehensive understanding of HIV and the support needs of AYAs. School nurses must exhibit empathy and support while establishing a strong rapport with AYAs living with HIV. Furthermore, educational institutions ought to utilize students' medical records to identify those on ART and connect them with school nurses for additional support while ensuring the confidentiality of their HIV status [62]. Differentiated service delivery (DSD) and multi-month dispensing for AYAs should be promoted, as these approaches mitigate the financial obstacles faced when accessing healthcare facilities for medication collection. DSD encompasses home-based ART delivery, refills at private pharmacies, community ART distribution centers, and patient-led community ART refill groups [63]. A study in six African countries revealed that multi-month dispensing increased ART adherence among children and adolescents [64], and another Zimbabwean study implementing community adolescent treatment supporter interventions revealed that adolescents in the intervention group were almost four times more likely to adhere to ART compared to those in the control group [65].

## 5. Strengths and Limitations

This review's strength lies in the independent screening of titles, abstracts, and full texts by two reviewers, facilitating the identification of errors throughout the process. Furthermore, the determinants identified in this study can allow for developing and implementing tailored support and interventions to increase ART adherence. This review utilized articles published in English, potentially introducing a language bias. A further limitation is the utilization of only five databases for the literature search, which may have led to the omission of relevant articles. The studies reviewed were conducted in only thirteen countries, raising concerns regarding the generalizability of the findings to other nations in the region.

## 6. Conclusions

Enhancing ART adherence among AYAs is advantageous for SSA, as many remain not virally suppressed. This scoping review identifies ART adherence determinants, including personal, interpersonal, social, healthcare system-related, medication-related, school- or work-related, and economic factors. Enhancing ART adherence in AYAs requires multiple strategies, including the reduction of internalized stigma, implementation of community awareness campaigns, harm reduction approaches for AYAs who misuse substances, comprehensive education on HIV, and the provision of support from school staff and leadership, alongside the adoption of DSD and multi-month dispensing practices.

**Supplementary Materials:** The following supporting information can be downloaded at: <https://www.mdpi.com/article/10.3390/adolescents5020010/s1>, Table S1: PubMed Full Search Strategy.

**Author Contributions:** E.M.: conceptualization, data extraction and synthesis, writing—original draft, supervision; P.M.: data extraction and synthesis, writing—review and editing; H.M.: data extraction and synthesis, writing—review and editing; G.M.: writing—review and editing; T.D.: writing—review and editing, supervision. All authors have read and agreed to the published version of the manuscript.

**Funding:** This research received no external funding.

**Institutional Review Board Statement:** Not applicable.

**Informed Consent Statement:** Not applicable.

**Data Availability Statement:** There is no dataset associated with this manuscript.

**Conflicts of Interest:** The authors declare no conflict of interest.

## References

1. UNAIDS. 2024 Global AIDS Report—The Urgency of Now: AIDS at a Crossroads. 2024. Available online: <https://www.unaids.org/en/resources/documents/2024/global-aids-update-2024> (accessed on 1 December 2024).
2. Hlopho, L.; Tamuzi, J.; Shumba, C.; Nyasulu, P. Barriers and facilitators to antiretroviral therapy adherence among adolescents aged 10 to 19 years living with HIV in sub-Saharan Africa: A mixed-methods systematic review and meta-analysis. *PLoS ONE* **2023**, *18*, e0276411. [CrossRef]
3. Castillo-Mancilla, J.; Haberer, J. Adherence Measurements in HIV: New Advancements in Pharmacologic Methods and Real-Time Monitoring. *Curr. HIV/AIDS Rep.* **2018**, *15*, 49–59. [CrossRef] [PubMed]
4. Galea, J.T.; Wong, M.; Muñoz, M.; Valle, E.; Leon, S.R.; Díaz Perez, D.; Kolevic, L.; Franke, M. Barriers and facilitators to antiretroviral therapy adherence among Peruvian adolescents living with HIV: A qualitative study. *PLoS ONE* **2018**, *13*, e0192791. [CrossRef]
5. van Wyk, B.; Davids, L. Challenges to HIV treatment adherence amongst adolescents in a low socio-economic setting in Cape Town. *S. Afr. J. HIV Med.* **2019**, *20*, 1002. [CrossRef]
6. Kim, M.H.; Mazenga, A.C.; Yu, X.; Ahmed, S.; Paul, M.E.; Kazembe, P.N.; Abrams, E.J. High self-reported non-adherence to antiretroviral therapy amongst adolescents living with HIV in Malawi: Barriers and associated factors. *J. Int. AIDS Soc.* **2017**, *20*, 21437. [CrossRef]
7. The Endnote Team. Endnote (Released in 2013). 2013. Available online: <https://endnote.com/product-details> (accessed on 1 December 2024).
8. Shimbire, M.S.; Bodicha, B.B.; Gabriel, A.N.; Ghazal, L.; Jiao, K.; Ma, W. Barriers and facilitators of transition of adolescents living with HIV into adult care in under-resourced settings of Southern Ethiopia: A qualitative study. *BMC Public Health* **2024**, *24*, 2898. [CrossRef]
9. Cele, M.; Archary, M. Acceptability of short text messages to support treatment adherence among adolescents living with HIV in a rural and urban clinic in KwaZulu-Natal. *S. Afr. J. HIV Med.* **2019**, *20*, 976. [CrossRef]
10. Ruel, T.; Mwangwa, F.; Balzer, L.B.; Ayieko, J.; Nyabuti, M.; Mugoma, W.E.; Kabami, J.; Kamugisha, B.; Black, D.; Nzarubara, B.; et al. A multilevel health system intervention for virological suppression in adolescents and young adults living with HIV in rural Kenya and Uganda (SEARCH-Youth): A cluster randomised trial. *Lancet HIV* **2023**, *10*, e518–e527. [CrossRef]
11. Ferrand, R.A.; Simms, V.; Dauya, E.; Bandason, T.; Mchugh, G.; Mujuru, H.; Chonzi, P.; Busza, J.; Kranzer, K.; Munyati, S.; et al. The effect of community-based support for caregivers on the risk of virological failure in children and adolescents with HIV in Harare, Zimbabwe (ZENITH): An open-label, randomised controlled trial. *Lancet Child Adolesc. Health* **2017**, *1*, 175–183. [CrossRef]
12. Thurman, T.R.; Lockett, B.; Zani, B.; Nice, J.; Taylor, T.M. Can Support Groups Improve Treatment Adherence and Reduce Sexual Risk Behavior among Young People Living with HIV? Results from a Cohort Study in South Africa. *Trop. Med. Infect. Dis.* **2024**, *9*, 162. [CrossRef]
13. Nice, J.; Saltzman, L.; Thurman, T.; Zani, B. Latent class analysis of ART barriers among adolescents and young adults living with HIV in South Africa. *AIDS Care* **2024**, *36*, 45–53. [CrossRef] [PubMed]
14. Hornschuh, S.; Dietrich, J.; Tshabalala, C.; Laher, F. Antiretroviral Treatment Adherence: Knowledge and Experiences among Adolescents and Young Adults in Soweto, South Africa. *AIDS Res. Treat.* **2017**, *2017*, 5192516. [CrossRef]
15. Khangale, H.; Raliphaswa, N.; Tshililo, A. Experiences of Adolescents on Antiretroviral Therapy at Rustenburg Sub-District, Northwest Province, South Africa. *Children* **2024**, *11*, 143. [CrossRef]

16. Mashele, V.; Marincowitz, G.; Marincowitz, C. Factors influencing adherence to antiretroviral therapy among young adults in Limpopo province. *S. Afr. Fam. Pract.* **2024**, *66*, e1–e6. [[CrossRef](#)]
17. Maskew, M.; Fox, M.P.; Evans, D.; Govindasamy, D.; Jamieson, L.; Maletle, G.; Mongwenyana, C.; Technau, K. Insights into Adherence among a Cohort of Adolescents Aged 12–20 Years in South Africa: Reported Barriers to Antiretroviral Treatment. *AIDS Res. Treat.* **2016**, *2016*, 4161738. [[CrossRef](#)] [[PubMed](#)]
18. Mabunda, K.; Ngamasana, E.L.; Babalola, J.O.; Zunza, M.; Nyasulu, P. Determinants of poor adherence to antiretroviral treatment using a combined effect of age and education among human immunodeficiency virus infected young adults attending care at Letaba Hospital HIV Clinic, Limpopo Province, South Africa. *Pan Afr. Med. J.* **2019**, *32*, 37. [[CrossRef](#)] [[PubMed](#)]
19. Cluver, L.; Shenderovich, Y.; Toska, E.; Rudgard, W.E.; Zhou, S.; Orkin, M.; Haghighat, R.; Chetty, A.N.; Kuo, C.; Armstrong, A.; et al. Clinic and care: Associations with adolescent antiretroviral therapy adherence in a prospective cohort in South Africa. *AIDS* **2021**, *35*, 1263–1271. [[CrossRef](#)]
20. Jjumba, I.; Kanyesigye, M.; Ndagijimana, G.; Wattira, J.; Olong, C.; Olok, R.A.; Beebwa, E.; Muzoora, C. Perceived barriers and facilitators to antiretroviral therapy adherence among youth aged 15–24 years at a regional HIV clinic in South-Western Uganda: A qualitative study. *Afr. Health Sci.* **2022**, *22*, 54–62. [[CrossRef](#)]
21. Nabukeera-Barungi, N.; Elyanu, P.; Asire, B.; Katureebe, C.; Lukabwe, I.; Namusoke, E.; Musinguzi, J.; Atuyambe, L.; Tumwesigye, N. Adherence to antiretroviral therapy and retention in care for adolescents living with HIV from 10 districts in Uganda. *BMC Infect. Dis.* **2015**, *15*, 520. [[CrossRef](#)]
22. MacCarthy, S.; Saya, U.; Samba, C.; Birungi, J.; Okoboi, S.; Linnemayr, S. “How am I going to live?”: Exploring barriers to ART adherence among adolescents and young adults living with HIV in Uganda. *BMC Public Health* **2018**, *18*, 1158. [[CrossRef](#)]
23. Ajuna, N.; Tumusiime, B.; Amanya, J.; Awori, S.; Rukundo, G.Z.; Asimwe, J.B. Social Networks and Barriers to ART Adherence Among Young Adults (18–24 years) Living with HIV at Selected Primary Health Facilities of South-Western Uganda: A Qualitative Study. *HIV AIDS* **2021**, *13*, 939–958. [[CrossRef](#)] [[PubMed](#)]
24. Audi, C.; Jahanpour, O.; Antelman, G.; Guay, L.; Rutaihwa, M.; van de Ven, R.; Woelk, G.; Baird, S.J. Facilitators and barriers to antiretroviral therapy adherence among HIV-positive adolescents living in Tanzania. *BMC Public Health* **2021**, *22*, 2274. [[CrossRef](#)]
25. Nyogea, D.; Mtenga, S.; Henning, L.; Franzeck, F.C.; Glass, T.R.; Letang, E.; Tanner, M.; Geubbels, E. Determinants of antiretroviral adherence among HIV positive children and teenagers in rural Tanzania: A mixed methods study. *BMC Infect. Dis.* **2015**, *15*, 28. [[CrossRef](#)]
26. Amour, M.; Sangeda, R.Z.; Kidenya, B.; Balandya, E.; Mmbaga, B.T.; Machumi, L.; Rugarabamu, A.; Aris, E.; Njiro, B.J.; Ndumwa, H.P.; et al. Adherence to Antiretroviral Therapy by Medication Possession Ratio and Virological Suppression among Adolescents and Young Adults Living with HIV in Dar es Salaam, Tanzania. *Trop. Med. Infect. Dis.* **2022**, *7*, 52. [[CrossRef](#)] [[PubMed](#)]
27. Onyango, M.A.; Chergui, H.; Sabin, L.L.; Messersmith, L.J.; Sarkisova, N.; Oyombra, J.; Akello, P.; Kwaro, D.O.; Otieno, J. School-level Barriers of Antiretroviral Therapy Adherence and Interventions to Overcome them Among Adolescents Living with HIV in Western Kenya: A Qualitative Study. *Open AIDS J.* **2021**, *15*, 93–107. [[CrossRef](#)]
28. Altamirano, J.; Odero, I.A.; Omollo, M.; Awuonda, E.; Ondeng’e, K.; Kang, J.L.; Behl, R.; Ndivo, R.; Baiocchi, M.; Barsosio, H.C.; et al. Understanding ART Adherence among Adolescent Girls and Young Women in Western Kenya: A Cross-Sectional Study of Barriers and Facilitators. *Int. J. Environ. Res. Public Health* **2023**, *20*, 6922. [[CrossRef](#)] [[PubMed](#)]
29. Adams, C.; Kiruki, M.; Karuga, R.; Otiso, L.; Graham, S.M.; Beima-Sofie, K.M. “Your status cannot hinder you”: The importance of resilience among adolescents engaged in HIV care in Kenya. *BMC Public Health* **2022**, *22*, 1272. [[CrossRef](#)]
30. Madiba, S.; Josiah, U. Perceived Stigma and Fear of Unintended Disclosure are Barriers in Medication Adherence in Adolescents with Perinatal HIV in Botswana: A Qualitative Study. *BioMed Res. Int.* **2019**, *2019*, 9623159. [[CrossRef](#)]
31. Yang, E.; Mphele, S.; Moshashane, N.; Bula, B.; Chapman, J.; Okatch, H.; Pettitt, E.; Tshume, O.; Marukutira, T.; Anabwani, G.; et al. Distinctive barriers to antiretroviral therapy adherence among non-adherent adolescents living with HIV in Botswana. *AIDS Care* **2018**, *30*, 224–231. [[CrossRef](#)]
32. Mesic, A.; Halim, N.; MacLeod, W.; Haker, C.; Mwansa, M.; Biemba, G. Facilitators and Barriers to Adherence to Antiretroviral Therapy and Retention in Care Among Adolescents Living with HIV/AIDS in Zambia: A Mixed Methods Study. *AIDS Behav.* **2019**, *23*, 2618–2628. [[CrossRef](#)]
33. St Clair-Sullivan, N.; Mwamba, C.; Whetham, J.; Bolton Moore, C.; Darking, M.; Vera, J. Barriers to HIV care and adherence for young people living with HIV in Zambia and mHealth. *mHealth* **2019**, *5*, 45. [[CrossRef](#)] [[PubMed](#)]
34. Oluwole, E.O.; Ibidapo, D.O.; Akintan, P.E.; Adegoke, A.B.; Shogbamimu, Y.O. Medication Adherence, Barriers to Adherence and Treatment Satisfaction with Antiretroviral Therapy Among Adolescents Living with HIV in Lagos, Nigeria. *Ann. Health Res.* **2023**, *9*, 222–237. [[CrossRef](#)]
35. Aderemi-Williams, R.I.; Razaq, A.R.; Abah, I.O.; Opanuga, O.O.; Akanmu, A.S. Adolescents and Young Adults Knowledge, Adherence and Experiences While on Antiretroviral Therapy in a Tertiary Hospital in Lagos, Nigeria: A Mixed-Method Study. *J. Int. Assoc. Provid. AIDS Care* **2021**, *20*, 23259582211062754. [[CrossRef](#)]

36. Jopling, R.; Mutsvuke, W.; Fertig, M.; O'Cleirigh, C.; Mangezi, W.; Abas, M. "What if I got rejected by the girl? I would rather stop the pills": Barriers and facilitators of adherence to antiretroviral therapy for emerging adults aged 18–29 living with HIV in Zimbabwe. *AIDS Care* **2024**, *36*, 168–178. [[CrossRef](#)] [[PubMed](#)]
37. Villiera, J.B.; Katsabola, H.; Bvumbwe, M.; Mhango, J.; Khosa, J.; Silverstein, A.; Nyondo-Mipando, A.L. Factors associated with antiretroviral therapy adherence among adolescents living with HIV in the era of isoniazid preventive therapy as part of HIV care. *PLOS Glob Public Health* **2022**, *2*, e0000418. [[CrossRef](#)]
38. Habumugisha, E.; Nyishimirente, S.; Katende, G.; Nkurunziza, A.; Mukeshimana, M.; Ngerageze, I.; Mukashyaka, J. Factors Influencing Adherence to Antiretroviral Therapy (ART) among Adolescents Living with Human Immunodeficiency virus (HIV) in Rwanda. *Rwanda J. Med. Health Sci.* **2022**, *5*, 251–263. [[CrossRef](#)]
39. Ankrah, D.N.; Koster, E.S.; Mantel-Teeuwisse, A.K.; Arhinful, D.K.; Agyepong, I.A.; Lartey, M. Facilitators and barriers to antiretroviral therapy adherence among adolescents in Ghana. *Patient Prefer. Adherence* **2016**, *10*, 329–337. [[CrossRef](#)]
40. Zurbachew, Y.; Hiko, D.; Bacha, G.; Merga, H. Adolescent's and youth's adherence to antiretroviral therapy for better treatment outcome and its determinants: Multi-center study in public health facilities. *AIDS Res. Ther.* **2023**, *20*, 91. [[CrossRef](#)]
41. Kamangu, J.; Mboweni, S. Factors Impacting ART Adherence among HIV-Positive Older Adolescents and Younger Adults in Namibia: A Qualitative Analysis. *Open Public Health J.* **2024**, *17*, e18749445299654. [[CrossRef](#)]
42. Dessie, G.; Wagnew, F.; Mulugeta, H.; Amare, D.; Jara, D.; Leshargie, C.T.; Negesse, A.; Rayasam, S.; Burrowes, S. The effect of disclosure on adherence to antiretroviral therapy among adults living with HIV in Ethiopia: A systematic review and meta-analysis. *BMC Infect. Dis.* **2019**, *19*, 528. [[CrossRef](#)]
43. Phuphanich, M.; Rattanamahattana, M.; Avihingsanon, A.; Chetchotisakd, P.; Putcharoen, O.; Gandhi, M.; Sohn, A.H.; Imrie, J.; Phanuphak, P.; Kerr, S.J. A qualitative assessment of barriers and facilitators to antiretroviral adherence in Thai patients. *J. Virus Erad.* **2016**, *2*, 22–27. [[CrossRef](#)]
44. Buckley, J.; Otwombe, K.; Joyce, C.; Leshabane, G.; Galvin, L.; Ramsammy, C.; Liberty, A.; Violari, A. Impact of Disclosure over Time on the Emotional Well-Being of Children with Perinatally Acquired HIV Infection in South Africa. *J. Dev. Behav. Pediatr.* **2022**, *43*, e188–e196. [[CrossRef](#)] [[PubMed](#)]
45. Ammon, N.; Mason, S.; Corkery, J. Factors impacting antiretroviral therapy adherence among human immunodeficiency virus-positive adolescents in Sub-Saharan Africa: A systematic review. *Public Health* **2018**, *157*, 20–31. [[CrossRef](#)]
46. Iacob, S.; Iacob, D.; Jugulete, G. Improving the Adherence to Antiretroviral Therapy, a Difficult but Essential Task for a Successful HIV Treatment—Clinical Points of View and Practical Considerations. *Front. Pharmacol.* **2017**, *8*, 831. [[CrossRef](#)]
47. Simelane, P.T.; Simelane, M.S.; Amoateng, A.Y. Barriers and facilitators to adherence for antiretroviral therapy: The perspectives of patients from a wellness center in the Mpumalanga Province, South Africa. *Afr. Health Sci.* **2022**, *22*, 455–462. [[CrossRef](#)] [[PubMed](#)]
48. Tuot, S.; Sim, J.W.; Nagashima-Hayashi, M.; Chhoun, P.; Teo, A.K.; Prem, K.; Yi, S. What are the determinants of antiretroviral therapy adherence among stable people living with HIV? A cross-sectional study in Cambodia. *AIDS Res. Ther.* **2023**, *20*, 47. [[CrossRef](#)]
49. Heestermans, T.; Browne, J.L.; Aitken, S.C.; Vervoort, S.C.; Klipstein-Grobusch, K. Determinants of adherence to antiretroviral therapy among HIV-positive adults in sub-Saharan Africa: A systematic review. *BMJ Glob. Health* **2016**, *1*, e000125. [[CrossRef](#)]
50. Raffi, F.; Yazdanpanah, Y.; Fagnani, F.; Laurendeau, C.; Lafuma, A.; Gourmelen, J. Persistence and adherence to single-tablet regimens in HIV treatment: A cohort study from the French National Healthcare Insurance Database. *J. Antimicrob. Chemother.* **2015**, *70*, 2121–2128. [[CrossRef](#)]
51. Mey, A.; Plummer, D.; Dukie, S.; Rogers, G.D.; O'Sullivan, M.; Domberelli, A. Motivations and Barriers to Treatment Uptake and Adherence Among People Living with HIV in Australia: A Mixed-Methods Systematic Review. *AIDS Behav.* **2017**, *21*, 352–385. [[CrossRef](#)]
52. Kuznetsova, A.V.; Meylaks, A.Y.; Amirkhanian, Y.A.; Kelly, J.A.; Yakovlev, A.A.; Musatov, V.B.; Amirkhanian, A.G. Barriers and Facilitators of HIV Care Engagement: Results of a Qualitative Study in St. Petersburg, Russia. *AIDS Behav.* **2016**, *20*, 2433–2443. [[CrossRef](#)]
53. Reda, A.; Biadgilign, S. Determinants of Adherence to Antiretroviral Therapy among HIV-Infected Patients in Africa. *AIDS Res. Treat.* **2012**, *2012*, 574656. [[CrossRef](#)] [[PubMed](#)]
54. Choudhary, M.; Mellors, J. The transformation of HIV therapy: One pill once a day. *Antivir. Ther.* **2022**, *27*, 13596535211062396. [[CrossRef](#)]
55. Mcinziba, A.; Bock, P.; Hoddinott, G.; Seeley, J.; Bond, V.; Fidler, S.; Viljoen, L. Managing household income and antiretroviral therapy adherence among people living with HIV in a low-income setting: A qualitative data from the HPTN 071 (PopART) trial in South Africa. *AIDS Res. Ther.* **2023**, *20*, 54. [[CrossRef](#)]
56. Mutwa, P.R.; Van Nuil, J.I.; Asimwe-Kateera, B.; Kestelyn, E.; Vyankandondera, J.; Pool, R.; Ruhirimbura, J.; Kanakuze, C.; Reiss, P.; Geelen, S.; et al. Living Situation Affects Adherence to Combination Antiretroviral Therapy in HIV-Infected Adolescents in Rwanda: A Qualitative Study. *PLoS ONE* **2013**, *8*, e60073. [[CrossRef](#)]

57. Pantelic, M.; Steinert, J.I.; Park, J.; Mellors, S.; Murau, F. 'Management of a spoiled identity': Systematic review of interventions to address self-stigma among people living with and affected by HIV. *BMJ Glob Health* **2019**, *4*, e001285. [[CrossRef](#)] [[PubMed](#)]
58. Kaihin, R.; Kasatpibal, N.; Chitreechuer, J.; Grimes, R.M. Effect of an Empowerment Intervention on Antiretroviral Drug Adherence in Thai Youth. *Behav. Med.* **2015**, *41*, 186–194. [[CrossRef](#)] [[PubMed](#)]
59. Steinert, J.I.; Shenderovich, Y.; Smith, M.; Zhou, S.; Toska, E.; Cluver, L. Economic Well-being and Associated Mediating Pathways to Improved Antiretroviral Therapy Adherence Among Adolescents Living With HIV: A Prospective Cohort Study in South Africa. *J. Acquir. Immune Defic. Syndr.* **2022**, *91*, 343–352. [[CrossRef](#)]
60. Andersson, G.Z.; Reinius, M.; Eriksson, L.E.; Svedhem, V.; Esfahani, F.M.; Deuba, K.; Rao, D.; Lyatuu, G.W.; Giovenco, D.; Ekström, A.M. Stigma reduction interventions in people living with HIV to improve health-related quality of life. *Lancet HIV* **2020**, *7*, e129–e140. [[CrossRef](#)]
61. Okonji, E.F.; Wyk, B.V.; Hughes, G.D.; Mukumbang, F.C. Psychosocial Support Programme Improves Adherence and Health Systems Experiences for Adolescents on Antiretroviral Therapy in Mpumalanga Province, South Africa. *Int. J. Environ. Res. Public Health* **2022**, *19*, 15468. [[CrossRef](#)]
62. Nacken, A.; Rehfuss, E.; Paul, I.; Lupapula, A. Teachers' competence, school policy and social context-HIV prevention needs of primary schools in Kagera, Tanzania. *Health Educ. Res.* **2018**, *33*, 505–521. [[CrossRef](#)]
63. Semo, B.W.; Ezeokafor, N.; Adeyemi, S.; Kpamor, Z.; Mugo, C. Differentiated service delivery models for antiretroviral treatment refills in Northern Nigeria: Experiences of people living with HIV and health care providers—A qualitative study. *PLoS ONE* **2023**, *18*, e0287862. [[CrossRef](#)] [[PubMed](#)]
64. Kim, M.H.; Wanless, R.S.; Caviness, A.C.; Golin, R.; Amzel, A.; Ahmed, S.; Mhango, J.B.; Damba, D.; Kayabu, A.B.; Chodota, M.; et al. Multi-month Prescription of Antiretroviral Therapy Among Children and Adolescents: Experiences From the Baylor International Pediatric AIDS Initiative in 6 African Countries. *J. Acquir. Immune Defic. Syndr.* **2018**, *78*, S71–S80, Erratum in *J. Acquir. Immune Defic. Syndr.* **2018**, *79*, e107. [[CrossRef](#)] [[PubMed](#)]
65. Willis, N.; Milanzi, A.; Mawodzeke, M.; Dziwa, C.; Armstrong, A.; Yekeye, I.; Mtshali, P.; James, V. Effectiveness of community adolescent treatment supporters (CATS) interventions in improving linkage and retention in care, adherence to ART and psychosocial well-being: A randomised trial among adolescents living with HIV in rural Zimbabwe. *BMC Public Health* **2019**, *19*, 117. [[CrossRef](#)] [[PubMed](#)]

**Disclaimer/Publisher's Note:** The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.