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Factors that Influence PLHIV's Compliance with ARV Therapy in the World Year 2018 – 2022

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Abstract

ARV therapy is important in treating HIV cases. Even though it does not cure, ARVs help suppress the growth of the virus. Adherence to therapy is essential to achieve optimal results. The objective was to decide the components that impact the adherence of PLHIV in ARV treatment. This could be a story writing audit think about conducted by looking at articles through the Science Coordinate and PubMed databases. The catchphrases utilized are Variables impacting adherence to antiretroviral treatment among HIV/AIDS patients, HIV patient adherence to ART, and "adherence" and ART HIV/AIDS patients, with inclusion criteria: Articles published in 2018-2022, published in Indonesian language or English, original research, available in full text. Exclusion criteria: articles published before 2018, review articles, and qualitative studies, do not discuss factors for adherence to ARV therapy. 20 articles satisfy the review criteria, various factors that affect adherence to ARV therapy are socio-demographic factors, clinical factors, therapeutic factors, healthcare facilities factors, and other contextual factors. Poor quality of health services, level of education, younger age, social support, community stigma, COVID-19 pandemic, and ability and understanding of ART act as risk factors for PLHIV's adherence to ARV treatment. The discoveries of these different variables ended up reference for wellbeing offices to move forward the quality of administrations and public awareness of optimal ARV therapy adherence.

INTRODUCTION

Human immunodeficiency virus (HIV) is an infection that attacks the body's immune system, particularly white blood cells called CD4 cells (World Wellbeing Organization, 2022). HIV annihilates these CD4 cells, debilitating a person's insusceptibility to astute diseases, such as tuberculosis and parasitic contaminations, extreme bacterial diseases, and a few sorts of cancer (World Health Organization, 2022). The most advanced stage of HIV infection is acquired immunodeficiency syndrome (AIDS), which can take years to develop if left untreated, depending on the individual. AIDS is defined as the development of certain cancers, infections, or other severe long-term clinical manifestations (World Health Organization, 2022). HIV is a world problem because it has claimed tens of millions of lives throughout the world. Data shows that in 2021, as many as 650,000 individuals kicked the bucket from HIV-related causes and 1.5 million individuals contracted HIV. In expansion, to date it is assessed that HIV has claimed 40.1 million lives (World Wellbeing Organization, 2022). In Indonesia, until the conclusion of June 2022, 473,005 PLHIV were found and 163,562 PLHIV were accepting treatment (Kementerian Kesehatan Republik Indonesia, 2022).

HIV transmission can be anticipated with appropriate treatment. Compelling antiretroviral treatment (ART) can anticipate mother-to-child transmission of HIV during

pregnancy, childbirth, and breastfeeding. An individual who is experiencing antiretroviral treatment and the development of the infection is stifled will not transmit HIV to their sexual accomplices (World Wellbeing Organization, 2022). HIV illness can be overseen with a treatment regimen comprising a combination of antiretroviral drugs (ARV). Current antiretroviral treatment (ART) does not remedy HIV disease but smothers viral replication and permits the recuperation of a person's safe framework to fortify and recapture the capacity to battle deft contaminations and a few cancers (World Wellbeing Organization, 2022). Since 2016, WHO has prescribed Treat All: that all individuals living with HIV be given long-lasting ART, including children, teenagers, grown-ups, and pregnant and breastfeeding ladies, notwithstanding clinical status or CD4 cell check (World Wellbeing Organization, 2022). Be that as it may, fruitful administration of patients with HIV must be done by understanding compliance in experiencing antiretroviral treatment. Hence, this thinks about points to decide the variables related to understanding compliance in experiencing ARV treatment.

RESEARCH METHODS

This study was a narrative literature review. Articles were looked through the Science Coordinate, PubMed, and Google Researcher databases utilizing the catchphrases: Variables affecting adherence to antiretroviral treatment among HIV/AIDS patients, HIV quiet adherence to ART, and "adherence" and ART to HIV/AIDS patients. Look for articles utilizing Bolen rationale "AND" and "OR" on watchwords and applying uncommon channels: article sort: inquire about an article, get to sort: open get to and open chronicle, and content accessibility: free full content. The chosen articles meet the inclusion criteria: articles distributed in 2018-2022, in English, or articles in Indonesian published in accredited journals, Sinta, are the results of original research, available in full text, discussing factors of adherence to ARV therapy.

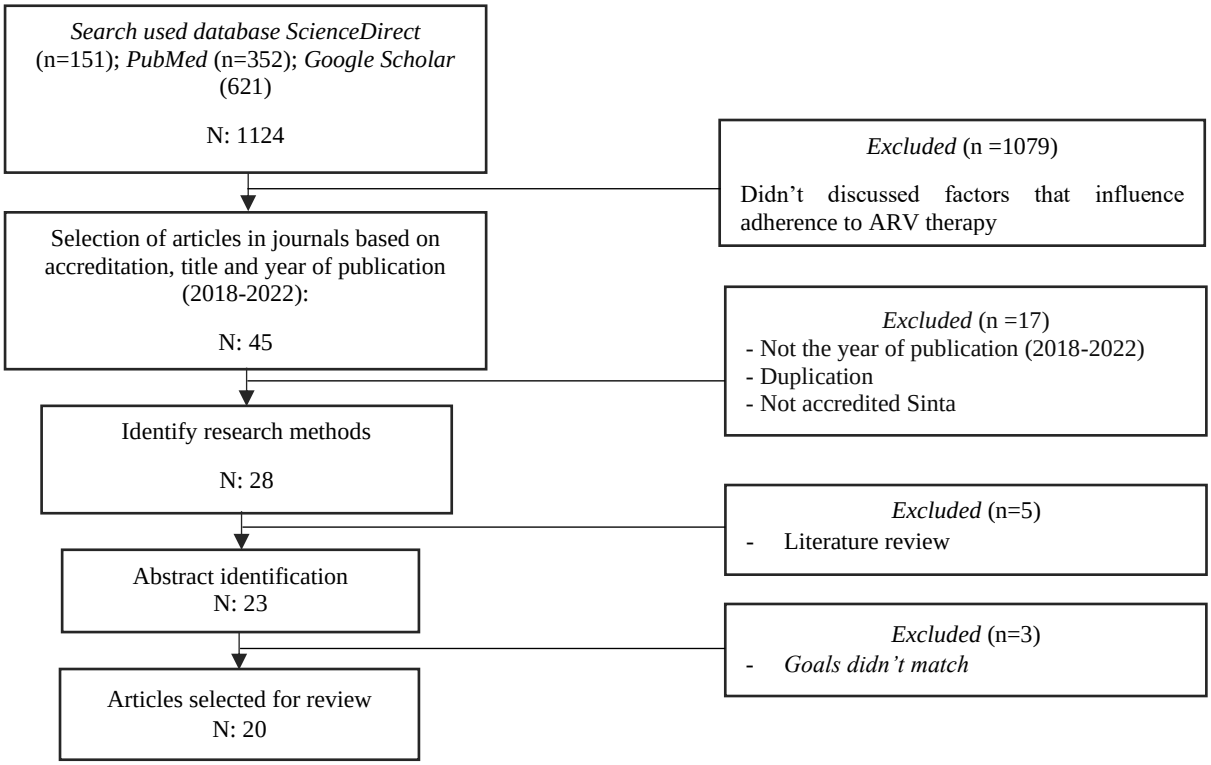

Diagram 1. Article review flow

Exclusion criteria: articles published before 2018, review articles, do not discuss factors of adherence to ARV therapy. Based on the results of the search for articles using the database, 20 articles were obtained that met the criteria for review. The population in this literature review is HIV/AIDS patients undergoing ARV therapy in several health facilities (Diagram 1). The results of research studies related to sample characteristics and research results are summarized and presented in tabular form. This study compares the research results of each article qualitatively and does not carry out statistical analysis.

RESULT

The results of the article search determined 20 articles that met the criteria for review. The research study design in the selected articles mostly uses a cross-sectional study design. The articles reviewed aim to assess the relationship between PLHIV's adherence to ARV therapy. The statistical analysis used is bivariate and multivariate. Many of the statistical analyses in this study are multivariate using the Multiple Logistic Regression test type. The average research subject was aged 30-58 years with a greater proportion of women than men. Apart from that, there are many subjects with a married status compared to other marital statuses. The highest level of education is at the secondary level. A summary of the research characteristics of the selected articles can be seen in Table 1.

The definition of adherence and how to measure ARV therapy in each study is different. Several studies define adherence to ARV therapy based on self-report scoring of medication taking. If the percentage is <95%, it is defined as the patient not adhering to ARV therapy or having low adherence (Fuge, Tsourtos, Miller, 2022; Suryana & Suharsono, 2022). Other studies measure adherence to ARV therapy based on the Center for Adherence Support Evaluation (CASE) adherence index. If the CASE index score is >10 then the patient has good compliance and <10 then the patient's compliance with ARV therapy is considered poor (Zheng & Zhao, 2022; Abebe, Gebremariam, Molla, Teferra, Wissow, Ruff, 2022).

Several studies in several countries show good compliance in carrying out ARV therapy. In research conducted in Indonesia, of 324 participants, 81.48% had high compliance (Suryana & Suharsono, 2022). In addition, a study in Tanzania found that 97.2% of participants based on the pharmacy refill method had good adherence to ARV therapy, however only 66.1% of injecting narcotics users were found to be compliant with ARV therapy based on the patient self-report method (Kizindo, Marealle, Mutagonda, Mlyuka, Mikomangwa, 2022). A survey in Austria of 257 participants also showed good adherence (185:72) (Beichler, Grabovac, Leichsenring, Dorner, 2022). Around 94.6% of PLHIV in a study in China had good adherence (Zheng & Zhao, 2022). Research conducted at Abba Ethiopia showed that only 200 (54%) of the study subjects had perfect compliance (Shimels, et al 2022). In contrast to research conducted in Liberia, 62% of 185 participants were non-compliant with ARV therapy (Strother, Tipayamongkholgul, Kosaisevee, Suwannapong, 2022). A survey conducted in Ghana showed that only 44.6% of 397 subjects had adherence to ARV therapy (Addo, Aboagye, Tarkang, 2022). The main goal of ARV therapy in PLHIV is to suppress the virus maximally and sustainably (HIV cannot be detected), minimize resistance to ARVs, prevent HIV-related morbidity and death, and prevent transmission (patients cannot be detected) (Beichler, Grabovac, Leichsenring, Dorner, 2022). Non-compliance with ARV therapy will certainly hurt PLHIV and will also cause health problems.

Table 1
Study Characteristic

Author	Year	Country	Study Design	Sample	Gender	Age (year/ mean)	Marital Status	Level of Education
Shields et al.,	2022	Central Ethiopia	Multi-site *Cross-sectional*	371	138/233	43.2±12.4 (16-77)	Married: 173 Unmarried: 89 Separated: 26 Divorced: 33 Widowed: 50	No formal education: 87 Basic education: 225 Tertiary education: 59
Kizindo et al.,	2022	Tanzania	*Cross-sectional*	180	112/68	37.6 (23-55)	Married: 81 Single: 74 Divorced: 25	No formal: 58 Primary: 104 Secondary & tertiary: 18
Kilapilo et al.,	2022	Tanzania	*Cross-sectional*	406	108/298	42.41±11.7	Married: 171 Single: 106 Divorced: 79 Widowed: 46	-
Fuge et al.,	2022	Southern Ethiopia	*Cross-sectional*	370	66/8 139/157	34 (28-40) 35 (30-40)	*Have partner: 35 Have no partner: 39 *Have partner:169 Have no partner: 127	No school: 24 Elementary: 37 High school: 11 College graduate: 2
Strother et al.,	2022	Liberia	*Cross-sectional*	185	53/132	<30: 19 30-39: 62 40-49: 48 ≥50: 56	Married: 46 Single: 98 Widowed/widower: 24 Separated/divorced: 17	No formal: 44 Primary: 31 Secondary: 41 High school:63 Bachelor's degree: 6
Pontiki et al.,	2022	Greece	*Descriptive correlation*	200	0/200	32.9±5.1	Married: 90 Unmarried: 85 Divorced: 17	None/primary: 57 Secondary: 81 High school: 81 University; 12 Employed: 117
Suryana& Suharsono	2022	Indonesia	*Cross-sectional*	324	197/127	<34: 153 ≥34: 171	-	Uneducated: 6 Elementary: 45 Junior high school: 58 High school: 186 University: 29
Shah et al.,	2022	Kongo	*Cross-sectional*	51.286	16.739/34.547	<15: 3629 15-54: 40.200 ≥55: 7457	-	-
Addo et al.,	2022	Ghana	*Cross-sectional*	397	193/204	<30: 164 30-39: 123 >40: 110	Married: 175 Never married: 142 Divorced: 21 Widow: 16 Cohabiting: 43	No formal: 108 Primary: 73 Secondary: 147 Tertiary: 69
Castelan et al.,	2022	Dutch	*Cross-sectional*	80	51/29	52 ±12	-	-
Beichler et al.,	2022	Austria	*Cross-sectional*	257	189/62	25-49 (66.2%)	-	Primary:126 Secondary: 72 Tertiary: 18
Zheng & Zhao	2022	China	*Cross-sectional*	185	136/49	58.8±7.5	Married: 144 Unmarried: 6 Divorced: 18 Widowed: 17	Primary/below: 33 Middle: 77 High: 42 College/above: 33

Author	Year	Country	Study Design	Sample	Gender	Age (year/ mean)	Marital Status	Level of Education
Bondarch uk et al.,	2022	South Africa	*Cross-sectional*	103	26/77	42.7±10.6 (18-66)	-	No formal: 1 Primary: 16 Secondary: 77 Higher: 9
Abebe et al.,	2022	Ethiopia	*Cross-sectional*	368	0/368	30.79±4.7 (20-45)	Married: 308 Single: 60	Primary & below: 183 High & above: 185
Wedajo et al.,	2022	Ethiopia	*Cross-sectional*	714	314/400	37 (30-45)	Married: 342 Not married: 314	Formally: 433 Not formally: 281
Gordon et al.,	2021	Burkina	*Randomized controlled trial*	176	12.5%	36.2±12.1	-	University: 57.3%
Nguyen et al.,	2021	Vietnam	*Cross-sectional*	350	220/130	≥35: 188 <35: 162	Married: 166 Single: 184	Upper secondary: 206 Lower secondary: 144
Sari et al.,	2019	Indonesia	*Cross-sectional*	30	16/14	20-33: 14 34-46: 10 47-60: 6	-	Elementary: 3 High Junior School: 4 High Senior School: 21 University: 2
Lestari et al.,	2021	Indonesia	*Cross-sectional*	148	125/23	17-25: 19 26-35: 53 36-45: 36 46-55: 24 56-65: 16	-	Elementary: 8 High Junior School: 0 High Senior School: 65 University: 75
Hidayati et al.,	2018	Indonesia	*Cross-sectional*	75	42/33	20-30: 20 31-40: 48 41-50: 7	-	Elementary: 7 High Junior School: 13 High Senior School: 38 University: 17

Table 2
The Comparison of Study Results

Author	Study Result
Shimels et al., 2022	COVID-19 affected follow-up in 72 (19.0%) and sedate accessibility in 50 (13.5%). A few PLHIV and comorbid T2DM or hypertension (29, 48.0%) detailed that sedate costs expanded amid COVID-19. Essential instruction (aOR = 3.02: 95% CI: 1.57–5.80), Conjugal status (aOR = 2.27: 95% CI: 1.24–4.15), participation at community wellbeing center (aOR = 0.59: 95% CI: 0.36–0.98) Rest unsettling influence (aOR = 0.47: 95% CI: 0.26–0.84) appeared a measurably critical affiliation with ART adherence.
Kizindo et al., 2022	Roughly 97.2% great adherence to ART concurring with drug store refill strategies. In any case, as it were 66.1% of PWID were found to be disciple to ART based on persistent self-report strategies. After ascribing the self-report strategy to a viral stack >1000 copies/mL, members were 3.37 times more likely to have missed their ART measurements at slightest once within the final three days sometime recently the return visit than those with a viral stack
Kilapilo et al., 2022	The larger part (73.4%) were female, with 94.6% of patients on DTG-based regimens. Components such as retreatment interim and concomitant utilization of ARVs have a noteworthy impact on adherence. Patients displaying to the care and treatment center (CTC) at Temeke Territorial Referral Healing Center (RRH) were 4.3 times more likely to be non-adherent compared with those going to Amana RRH (aOR: 4.3, 95% CI: 2, 38 – 7.91, p esteem < 0.0001).

Author	Study Result
Fuge et al., 2022	ILWH had altogether higher retreatment adherence than non-incarcerated PLHIV (89% vs 75%), they had somewhat lower measurement adherence (81% vs 83%). The predominance of viral non-suppression was marginally higher among ILWH (6.0%; 95% CI: 1.7-14.6%) than non-incarcerated PLHIV (4.5%; 95% CI: 2.4-7, 5%). Generally, no ART arrangements, disappointment with ART administrations, failure to follow the endorsed treatment plan, and sort of strategy utilized to screen the plan were essentially related to nonadherence. Concurring to the (self-report) ILWH claim to fame, getting to ART administrations from clinics, failure to appropriately go to clinic arrangements, depressive side effects, and need for social back anticipated NA. Viral non-suppression was altogether higher in men, individuals aged 31–35 a long time, and those encountering social disgrace, in any case of imprisonment status.
Strother et al., 2022	62.2% of respondents demonstrated non-adherence to ART. Non-compliance in ladies was higher than in men (64.4% vs 56.6%). The comes about of factual investigation appear that solid disgrace encounters (PORadj = 2.392, p-value = 0.018), destitute data back (PORadj = 2.102, p-value = 0.026) increment the predominance of ART non-adherence among Liberian PLHIV.
Pontiki et al., 2022	The patients' mean information score: 50% (IQR: 38.9–61.1%), and their mean attitude score: 4.2 (IQR: 3.6–4.4); 13.0% of members followed to ART treatment. Particularly, 7.0% of them fizzled treatment 2 times when inquired approximately their exercises over the past 7 days, and 3.0% missed it 3 times. Ladies of Greek nationality ($p < 0.001$) and higher levels of instruction ($p = 0.001$), ladies with moo levels of social bolster had essentially lower compliance. Members who had followed ART treatment had altogether higher information and state-of-mind scores ($p = 0.027$).
Suryana&Suharsono 2022	From the 324 PLHIV on ART, 264 (81.48%) had high adherence ≥95%, and 60 (18.52%) had low adherence <95%. Independent factors associated with high ART adherence were employment status (AOR): 0.030: 95% (CI): 0.010-0.088; p <0.001, type of ARV (AOR: 3.101, 95% CI: 1.137–8.456; p = 0.027), family support (AOR: 0.157, 95% CI: 0.052–0.475; p = 0.001), perception that the COVID-19 pandemic negatively impacted the ability to attend clinics (AOR: 7.339, 95% CI: 1.46–36.79; p = 0.015), and the perception that the COVID-19 pandemic negatively impacted the ability to take ART (AOR: 10.611, 95% CI: 2.98–37.72; p < 0.001).
Shah et al., 2022	Ponders appear a maintenance rate of 78.2%. Most patients were classified as being in WHO clinical organize 1 (42.1%), asymptomatic arrange, as it were 3.2% were in organizing 4, the foremost serious organize of Help. The chances of maintenance were essentially higher for patients at WHO clinical arrange 1 compared with organize 4 (AOR, 1.325; CI, 1.13-1.55), ladies compared with men (AOR, 2.00; CI, 1.63- 2.44), and non-pregnant ladies (vs. pregnant ladies) at start of antiretroviral treatment (ART) (AOR, 2.80; CI, 2.04-3.85). The chances of maintenance were altogether lower for patients receiving a 1-month supply instead of different months (AOR, 0.22; CI, 0.20-0.23), and for patients in urban wellbeing zones (AOR, 0.75; CI, 0.59-0.94) than provincial ranges. Compared with patients who matured ≥55 a long time, the chances of maintenance were altogether lower for patients who matured
Addo et al., 2022	Adherence to ART was 44.6%. Clients who took less than 30 minutes to reach the ART location were 59% less likely to follow ART (OR 0.41; CI 0.20-0.82). Clients who thought they were losing salary when they went to induce their ART refill were more likely to follow ART (OR 1.71; CI 1.04-2.83), as were those who created side impacts (OR 1.74; CI 1.05-2.89) (seen obstructions). Clients who have confidence in their capacity to require pharmaceutical (self-efficacy) (OR 1.86; CI 1.05-3.31) and clients who get updates from wellbeing specialists (prompt to activity) (OR 1.91, 95% CI 1.04-3.53) more likely to comply with ART.
Castelan et al., 2022	Approximately half of the 80 members detailed inadvertent noncompliance and 20% detailed deliberateness noncompliance. Both inadvertent and purposeful noncompliance were related to a more youthful age. Furthermore, purposefulness nonadherence was related to being a vagrant from Suriname/Netherland Antilles, having more concerns around the endemic impacts of ART, and a more grounded conviction that medicines in common are overused/overprescribed.
Beichler et al., 2022	Generally, 27.6% were classified as nonadherent and self-reported based on whether antiretroviral treatment (ART) had ever been utilized or how frequently ART was ceased. This extent was essentially higher among patients aged 50–74 a long time (39.7%) and those with a longer term of treatment (9–15 a long time: 46.6%; from 15 a long time: 55.8%). Patients who were nonadherent to treatment appeared essentially lower scores within the relationship

Author	Study Result
	viewpoints of understanding (2.68 vs. 3.03), support (2.63 vs. 3.07), and recognition (3.00 vs. 3.24) compared with compliant quiet. Endidical relapse investigation affirmed that higher scores for understanding, engagement, and recognition were emphatically related to a diminished hazard of being non-compliant.
Zheng & Zhao 2022	Among members, 40% gotten polypharmacy, and PLHIV were female (β = 5.946; 95% CI = 1.354, 10.541), had lower month-to-month wages (β = 4.777; 95% CI = 6.923, 2.632), and utilized more medicines (β = 2.200; 95% CI = 1.167, 3.233) were more likely to report higher levels of medication-related burden. ART adherence scores were endemic to treatment-related burden (rs = -0.250 p = 0.001).
Bondarchuk et al., 2022	More than half (57.3%) of members were non-adherent to ART. Non-adherence was connected with more youthful age, endemic self-image, and lower conviction within the requirements for ART (P < 0.05). In persistent interviews, endody utilization, treatment weakness, and stigmatization have risen as indicators of problematic adherence.
Abebe et al., 2022	397 were qualified, of whom 368 (92.7%) took part and were included in the investigation. Of the full members, 175 (47.6%) experienced misery. The general member adherence rate to ART was 82%. Pregnant ladies with moo wage were twice as likely to encounter discouragement (AOR = 2.10, 95% CI = 1.31-3.36). Ladies with WHO Clinical Organize 1 malady were less likely to experience misery than ladies with more progressed infection (AOR = 0.16, 95% CI = 0.05-0.48). There was an endologically noteworthy relationship between discouragement and non-adherence to ART (P = 0.020); Endid non-adherence was 2 times higher among members with sadness (AOR = 1.88, 95% CI = 1.08-3.27).
Wedajo et al., 2022	The ideal level of treatment adherence among HIV patients taking second-line antiretroviral treatment was 69.5% (65.9-72.7%). Pharmaceutical adherence was emphatically related to utilizing adherence update strategies [AOR = 3.37, (95% CI 2.03-5.62)], having social back [AOR = 1.11, (95% CI 1.02-1 .23)], and did not have clinical misery [AOR = 3.19, (95% CI 1.93-5.27). Number of compliance counselors [AOR = 1.20, (95% CI 1.04-1.40)], collaboration to make strides in compliance back [AOR = 1.82, (95% CI 1.01-3.42)], and caseload at ART clinics all essentially connected with ARV adherence at the office level.
Gordon et al., 2021	Level of instruction, current HIV conclusion, and information and commitment to adherence were found to be related to ARV treatment preparation and early ARV treatment adherence.
Nguyen et al., 2021	Most of the patients: were men (62.9%), overwhelming age gather (≥35 long time) 53.7% of patients. Sexual intercourse is the most common course of HIV transmission (95.1%). The extent of participants who took the right medicine (98.3%) and within the adjusted dosage (86.3%). Around 94.9% of members took pharmaceuticals accurately in combination with nourishment and drink, and 75.7% of members were profoundly disciple to ART. Conjugal status variables (OR = 2.54; 95%CI = 1.51–4.28), being absent from domestic (OR = 1.7; 95%CI = 1.03–2.78), substance manhandle (OR = 2.7; 95%CI = 1.44–5 .05), common information around ART(OR = 2.75; 95%CI = 1.67–4.53), ceasing treatment after change (OR = 4.16; 95%CI = 2.29–7.56) and self-assessment of treatment adherence (OR = 9.83; 95% CI = 5.44-17.77) were essentially related with persistent adherence.
Sari et al., 2019	Variables related to compliance are bolstered from family: p esteem 0.004 (p-value 0.004 (<0.05), age: p-value 0.034 (<0.05), educational level: p-value 0.000 (<0.05), income: p-value 0.000 (<0.05), and length of ARV therapy program followed: p-value 0.042 (<0.05). Meanwhile, there was no significant relationship between compliance and gender: p-value 0.715 (>0.05).
Lestari et al., 2021	Ended variables related to the level of ARV adherence are instruction level (p-value= 0.022), family bolsters (p-value= 0.025), character of comorbidities (p-value= 0.007), and benefit offices (p-value= 0.015). In the interim, the endings that are not related are age (p-value = 0.255), sex (p-value = 0.853), and salary (p-value = 0.685).
Hidayati et al., 2018	The number of men is 56%, the most noteworthy age is 31-40 a long time ancient at 64%, the most elevated instruction level is a tall school at 50.67%, and the foremost business is within the private segment at 60%. The foremost common treatment characteristics were the combination of Tenofovir + Lamivudine + Efavirenz at 45.3%. The compliance level for HIV/AIDS patients at the Seroja Clinic, Gunung Jati Territorial Healing Center, Cirebon City is 34.7% and moo, 21.3%.

Based on Table 2, it can be seen that various factors influence PLHIV's compliance in undergoing ARV therapy, namely: (1) Socio-demographic factors: education level, marital status, age, level of knowledge, social support, employment status, income, family support (Suryana & Suharsono, 2022; Shimels, et al, 2022; Pontiki, Sarantaki, Nikolaidis, Lykeridou, 2022). However, not all studies find the same results, that age, gender, (Hidayati, Setyaningsih, Pandanwangi, 2018; Lestari, Setyani, Suparmi, 2021) level of education, employment are not related to HIV/AIDS patient compliance (Hidayati, et al 2018); (2) Health service facility factors: health centers, hospitals, clinics, sociodemographics (time to ARV therapy center), number of cases at ART clinics, number of counselors available, geography (urban/rural) (Fuge, et al, 2022; Addo, et al, 2022; Lestari, et al, 2021; Shah, Etheredge, Nkuta, Waterfield, 2022; Wedajo, Degu, Deribew, Ambaw, 2022; Nguyen, Thach, Pham, Lam, Nguyen, Duong, et al, 2021); (3) Clinical factors: clinical variables (disease stage), pregnancy, sleep problems/disorders, Viral load (Kizindo, et al, 2022; Shah, et al 2022); (4) Therapeutic factors: type of ART (unfixed dose combination), concomitant use of ARVs, side effects of therapy, time interval for re-therapy, inability to adhere to the prescribed therapy schedule, type of method used to monitor the schedule (for example, time of news on the radio/ TV or other), duration of therapy (1 month or more), duration of ART (>9 years). However, there are also studies which state that the type of ARV therapy is not related to HIV/AIDS patient compliance (Suryana & Suharsono, 2022; Kizindo, et al, 2022; Hidayati, et al, 2018; Castelan, Nellen, Valk, Nieuwkerk, 2022); and (5) Other contextual factors: Dissatisfaction with ART services, perception of COVID-19, self-efficacy (confidence in adherence to treatment despite side effects), commitment to adherence, convictions almost drugs (drugs are for the most part overused/overprescribed), substance mishandle, understanding, association, and recognition (appreciation, sympathy, openness, presumption of obligation in rise to share, acknowledgment of the quiet as a full part of the treatment handle, advancement of wellbeing proficiency, and eagerness to create a relationship with the persistent), self-image negative and low belief in the need for ARV therapy, depression, use of adherence reminder methods, strong experience of stigma, poor information support (Suryana & Suharsono, 2022; Shah, et al, 2022; Nguyen, et al, 2021; Gordon, Hoffman, Azhar, Ramirez, Schneider, Wagner, 2021).

DISCUSSION

The results of the article search found that 17 articles used cross-sectional design studies and 3 articles used other studies. The average research subject was aged 30-58 years with a greater proportion of women than men. Most of the subjects had married status and secondary education level. Study characteristics can be seen in Table 1. Adherence to ARV therapy is the main outcome assessed in this study. The definition of adherence and how to measure ARV therapy in each study in this literature review is different. One study measured adherence using 3 criteria: self-reporting methods, late taking pills, and missed refill appointments. Failure to fulfill any of these criteria during the last three months is considered nonadherence to ARV therapy (Strother, et al, 2022). Several studies define adherence to ARV therapy based on self-report scoring of medication taking. If the percentage is <95%, it is defined as the patient not adhering to ARV therapy or having low adherence (Fuge, et al, 2022; Suryana & Suharsono, 2022). Other studies measure adherence to ARV therapy based on the Center for Adherence Support Evaluation (CASE) adherence index. If the CASE index score is >10 then the patient has good compliance and <10 then the patient's compliance with ARV therapy is considered poor (Zheng, et al, 2022; Abebe, et al, 2022).

The statistical analysis used by each study to assess the strength or significance of the relationship between determinant factors and adherence to ARV therapy is also different. Many of the statistical analyzes in this study were multivariate using the Multiple Logistic Regression

test type (Fuge, et al, 2022; Abebe, et al, 2022; Kizindo, et al, 2022; Beichler, et al 2022; Shimels, et al, 2022; Strother, et al, 2022; Addo, et al, 2022; Pontiki, et al, 2022; Shah, et al, 2022; Wedajo, et al, 2022; Nguyen, et al, 2021; Castelan, et al, 2022). Other research is a bivariate analysis using the chi-square statistical test and Spearman's coefficient to assess the relationship between determinant factors and ARV adherence (Suryana & Suharsono, 2022; Zheng, et al, 2022; Hidayati, et al, 2018; Lestari, et al, 2021; Kilapilo MS, Sangeda, Bwire, Sambayi, Mosha, Killewo, 2022; Bondarchuk, Mlandu, Adams, Vries, States, Town, et al, 2022; Sari, Nurmawati, Hidayat, 2019).

This study found that socio-demographic characteristics of patients such as education level, marital status, employment status, income, social support, and age, influence PLHIV's compliance with ARV therapy. Research conducted in Los Angeles, USA shows that the level of education is related to readiness and adherence to ARV therapy (Gordon, et al, 2021). In line with this study, research in Central Ethiopia showed that education level was proven to significantly increase adherence to ARV therapy (Shimels, et al, 2022). A study in Burkina Faso found that women with higher education, having been members of support groups, not having gainful employment, and in advanced clinical stages, were more prone to poor adherence than their partners. In any case, this ponder did not discover any relationship between adherence to ARV treatment and the socio-demographic, clinical, and helpful characteristics of the bunch of pregnant and breastfeeding ladies and their accomplices (Zoungrana-yameogo, Fassinou, Ngwasiri, Samadoulougou, Traoré, Hien, et al, 2022). Other studies suggest that women agree that partner support is a necessary prerequisite for initiating and maintaining adherence to ARV therapy (Kanguya, Mubanga, Id BHC, Vinikoor, Mubiana, 2022). Maternal adoring and the craving to care for one's children ingrains a sense of duty among ladies that spurs them to overcome personal, interpersonal, and well-being framework-level obstructions to start and adhere to ARV treatment (Kanguya, et al, 2022). Another ponder depicted lower compliance among more youthful patients (Tchakoute, Rhee, Rabbit, Shafer, Sainani, 2022). Typically in line with discoveries in Dutch considers, where the probability of maintenance and adherence was altogether lower for more youthful patients (Shah, et al, 2022; Castelan, et al, 2022). Of the 185 respondents, 62.2% demonstrated non-adherence to ART. Ladies report higher levels of nonadherence compared with men (Strother, et al, 2022). In expansion, an investigation conducted in Liberia appeared that a tall level of instruction was demonstrated to be altogether related to higher compliance compared to those with a moo level of instruction, whereas ladies with a moo level of social bolster had altogether lower compliance. In the meantime, members who followed ARV treatment had altogether higher information and demeanor scores (Pontiki, et al, 2022). Information was found to be one of the variables that was essentially related to adherence to ARV treatment (Nguyen, et al, 2021; Gordon, et al, 2021). The chances of maintenance were essentially higher for patients in WHO clinical organize 1 compared with organize 4 (AOR, 1.325; 95% CI, 1.13-1.55), ladies compared with men, and non-pregnant ladies compared with pregnant ladies at pattern antiretroviral treatment (ART) (Shah, et al, 2022).

Apart from the above, this study also found that compliance with ARV therapy is also influenced by factors related to the health service facilities used, including the number/service capacity of each health service facility, the number of cases being handled, the number of counselors available, and the time needed to get there. health facilities (Lestari, et al, 2021; Shah, et al, 2022; Wedajo, et al, 2022; Nguyen, et al, 2021). A study in South Vietnam showed that ART access distance from home (OR, 1.7; 95% CI, 1.03–2.78) resulted in a 1.7 times risk of non-adherence to ARV therapy (Nguyen, et al, 2021). Wedajo et el's study (Wedajo, et al, 2022) conducted in Eastern Ethiopia found that the caseload in ART clinics, the number of adherence counselors, and teamwork to increase adherence support were proven to be

significantly correlated with ARV therapy adherence at the facility level. Another study found that the health care system and health facility management were cited as barriers that negatively impacted the ability of PLHIV on ARV therapy to maintain clinic appointments (Lowane, Lebese, Makgatho, Africa, Lebese, 2019). A study revealed that the main contextual factors that influence adherence to ARV therapy are intrapersonal level factors (substance use, financial constraints, food insecurity) and institutional level factors (patient-service provider relationships, health facility barriers) (Ndirangu, Gichane, Scd, Bonner, Drph, Cox, et al, 2022)

Clinical status is also a factor that influences adherence to ARV therapy. Research on PLHIV in Congo shows that the chances of retention are significantly higher for patients at WHO clinical stage 1 compared to stage 4 (Shah, et al, 2022). Meanwhile, a study in a population of HIV patients in Tanzania found that patients with a viral load >1000 copies/ml were 3.37 times more likely to miss their ART dose at least once in the last three days before a return visit compared with those with a viral load <1000 copies/ml (Kizindo, et al, 2022). In addition, research reveals that sleep disorders also show a statistically significant relationship with adherence to ARV therapy (Shimels, et al, 2022).

Other contextual factors also influence PLHIV's compliance with ARV therapy. Dissatisfaction with ARV therapy services is one of the factors influencing ARV therapy adherence. This is in line with a study in Southern Ethiopia, which stated that dissatisfaction with ARV therapy services and the absence of an ARV appointment were significantly associated with non-adherence to ARV therapy (Fuge, et al, 2022). This study also found that experiences of strong stigma and poor information support increased the prevalence of non-adherence to ARV therapy among PLHIV in Liberia (Strother, et al, 2022). This is in line with Bondarchuk (2022) who revealed that stigmatization emerged as a contributor to suboptimal adherence regarding ARV therapy. Other research also reveals that societal stigma is one of the contextual factors that influence ARV therapy adherence (Ndirangu, et al, 2022). Apart from that, the COVID-19 pandemic situation that is occurring in the world is also affecting various aspects of life, including health. The COVID-19 pandemic is one of the factors influencing PLHIV's compliance in undergoing ARV therapy in health service facilities. A study of the PLHIV population in Indonesia showed the perception that the COVID-19 pandemic hurt the ability to attend clinics (AOR: 7.339; 95% CI: 1.46–36.79; p=0.015), and the perception that the Covid-19 pandemic had an impact negative on ability to take ART (AOR: 10.611; 95% CI: 2.98–37.72; p < 0.001) (Suryana & Suharsono, 2022). Respondents in a study in Southern Ethiopia stated that COVID-19 had created challenges in therapeutic follow-up and drug availability for PLHIV (11). It was found in the population of PLHIV in Austria, that patients who were non-compliant with ARV therapy showed significantly lower scores in the aspects of understanding, participation, and perception, compared to compliant patients (Beichler, et al, 2022). Abebe et al's study found a high prevalence of depression in HIV-positive pregnant women in selected health facilities in Addis Ababa, and what is more concerning is its association with higher rates of non-adherence to ARV therapy which adversely impacts their HIV care outcomes (Abebe, et al, 2022). Then, there are concerns about the negative effects of ART and a stronger belief that drugs, in general, are overused or overprescribed (Castelan, et al, 2022). Apart from that, the use of illegal substances is also a factor that influences adherence to ARV therapy. The proportion of HIV sufferers in South Vietnam who have a history of drug abuse (30.3%) has been shown to significantly reduce adherence to ARV therapy (Nguyen, et al, 2021). Commitment to treatment is also very important in maintaining adherence to ARV therapy for PLHIV (Gordon, et al, 2021).

Limitations in this study include that the sample selection in some studies was not random so it may not be representative of the larger HIV population. In several studies, there was bias in examining factors related to service retention and self-reported to determine HIV services

provided to PLHIV. This study is also not a systematic review which the author did not carry out due to several obstacles in searching for articles limited to databases that are not paid or without subscriptions, so that articles leading to the title and aim of the study are only available in abstract form and cannot be accessed in full. text so it was not included in the criteria when screening articles in this study.

CONCLUSION

Based on an investigation of 20 articles, this think about portrays the inside and outside components that impact PLHIV's adherence to ideal ARV treatment. The discoveries of this ponder outline that in common destitute quality of wellbeing administrations and separate to get to to administrations can diminish the level of compliance of PLHIV in experiencing ARV treatment. However, other factors such as education level, younger age, social support, societal stigma, the COVID-19 pandemic, and ability and understanding of ARV therapy also act as risk factors for PLHIV's compliance with ARV therapy. Knowledge about the factors that influence compliance becomes a reference material for health facilities to improve service quality and public awareness of more optimal ARV therapy compliance.

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