Original Research Article

Socio-Ecological Analysis of Compliance with ARV Treatment in PLHIV in South Kalimantan

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ABSTRACT

In Indonesia, in 2021, the number of PLWHA found (419,551), adherence to taking antiretroviral medication (ARV) is the key to successful prevention of loss to follow-up (LFU) in people living with HIV (PLHIV). This research aims to comprehensively describe the factors that encourage and hinder adherence to ARV treatment in South Kalimantan from a stakeholder perspective. This research uses a qualitative approach with Focus Group Discussion (FGD) and in-depth interviews with 27 subjects from stakeholders, health workers, and non-governmental organizations/community organizations working in the field of HIV and AIDS in Banjar Regency, Banjarbaru City, Banjarmasin City, and Province. Data analysis uses the Miles and Huberman approach with the help of NVivo. The results of the study show the level of influence on ARV treatment adherence in PLWHA so that non-adherence is not only predicted at the individual level but is also known from the interpersonal, community, organizational and policy levels. For this reason, various intervention models are needed to increase adherence to ARV treatment in PLWHA. The conclusion shows that the most significant factor inhibiting adherence to ARV treatment in PLWHA is the organizational level.

Keywords: Adherence, antiretroviral, socio-ecological model, HIV

INTRODUCTION

Adherence to taking antiretroviral drugs (ARV) is the key to success in preventing loss to follow-up (LFU) in people living with HIV (ODHIV). LFU is when a patient does not visit the clinic for treatment for 90 days since the last visit or discontinues treatment for three consecutive months.[1,2] Although not yet a cure, ARV treatment can reduce mortality and morbidity, improve the quality of life of PLHIV, reduce transmission rates to non-HIV partners, and reduce levels of stigma and discrimination against PLHIV.[3,4,5] Non-compliance by PLHIV in consuming ARVs will cause ARV resistance, resulting in an uncontrollable amount of virus in the body.[6] However, many PLHIV still have followed or consumed ARV drugs experiencing loss-to-follow-up (LFU).[7,8,9]

In Indonesia, based on data released by the Ministry of Health up to March 2021, the number of PLHIV found (419,551) and reported reached 77 percent of the estimated number of PLHIV living (543,100). PLHIV who routinely receive ARV treatment account for 26 percent (142,906) of the estimated PLHIV (543,100) with loss to follow-up (LFU) after starting ARV treatment (65,779) by 26 percent of PLHIV who have started ARV treatment (262,693).[10] In South Kalimantan itself, adherence to taking ARV drugs is still an unresolved issue. Based on data from the South Kalimantan Prov Health Office, of the 82% of PLHIV undergoing ARV treatment, only 59 percent were compliant in taking ARV drugs.

The socio-ecological model develops a framework that various levels and layers of society (family, community, work, and life environment, city and national policies) influence individuals' behavior, and families and communities influence the occurrence of diseases and health problems. In general, research on adherence to ARV treatment is carried out separately, not looking at interpersonal, intrapersonal, community, organizational, and policy aspects comprehensively. Research that uses

stakeholders such as stakeholders, health service providers, communities, and PLHIV together and comprehensively in describing adherence to ARV treatment has yet to be done, especially in Indonesia and South Kalimantan.

Even if there is research using the Socio-Ecological Model approach on adherence to ARV treatment, the subjects and objects of the research are different, such as coming from PLHIV women who access PMTCT in Nigeria[11], key populations and PLHIV in Papua New Guinea[12], PLHIV and communities accessing services in Ethiopia[13], women living with HIV and ARVs and workers in the PMTCT program.[14]

This study aims to comprehensively describe the Socio-Ecological Model factors from interpersonal, intrapersonal, organizational, community, and policies that encourage and inhibit adherence to ARV treatment in South Kalimantan. The findings from this study are significant because they will help policymakers or service providers at the provincial and district/city levels to design effective and efficient intervention programs at the policy, community, organizational, and individual levels to increase adherence to ARV treatment in PLHIV in South Kalimantan and in national institutions.

METHOD

This study uses a qualitative design with a phenomenological approach. Data collection used focus group discussions (FGD) and in-depth interviews concerning the Socio-Ecological Model theory.[15] The model analysis in this research uses the Miles and Huberman Interactive Analysis Model. The research locations were in 3 regencies/cities in South Kalimantan, which had the highest number of HIV and AIDS cases, namely Banjarmasin City, Kab. Banjar and Banjarbaru City. The subjects in the study were community workers, HIV service providers, and HIV program implementers. The selection of research subjects was based on the principles of suitability and adequacy by purposive sampling. Recruitment of subjects was based on the general criteria of this study, namely: living and working in South Kalimantan (Banjarmasin et al.), aged 18 years and over, and willing to become research subjects. The method of recruiting subjects is by sending invitation letters to their respective agencies, and participants who attend or are assigned are then used as subjects. Data was collected for ten days, from March 5 to March 15, 2022. All FGD data and interviews were recorded, and the transcripts were analyzed thematically using NVivo 10. In this study, all subjects were explained about the research process and asked for research approval on a consent sheet. All subjects participated in this study of their own free will, and they could withdraw from this research at any time during the process. This research has received permission from the Ethics Commission of Lambung Mangkurat University Number 40/KEPK-FKULM/EC/III/2022.

RESULT AND DISCUSSION

The characteristics of the subject are as follows:

Table 1. Subject Characteristics

Characteristics	Regency/City					%
	Banjarmasin	Banjarbaru	Banjar	Province	Amount	
Gender						
Man	1	2	1	12	16	55,2
Women	3	2	3	5	13	44,8
Level of education						
First Middle School	-	-	-	1	1	3,5
Senior High School	-	-	-	8	8	27,6
D-III	1	2	-	-	3	10,3
S-1	1	1	2	5	9	31,0
Profession	-	1	1	-	2	6,9
S-2	1	1	1	2	5	17,2
S-3	-	-	-	1	1	3,5
Work						
Community Officer	-	-		12	12	41,4
Service Provider	1	3	2	2	8	27,6
Program Executor	2	2	2	3	9	31,0

Source: Primary Data, 2022

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Individual level

All research subjects mentioned factors that hindered adherence to ARV treatment, such as boredom with taking medication because they must be taken every day.

> Tired of taking medicine, because when they are tired of taking medicine, they can take a break for a month (R, Community Officer)

The side effects PLHIV feels when consuming ARVs for the first time also cause PLHIV to experience fear of taking medication, so PLHIV decides to stop taking ARVs. This is as expressed by the subject of the Provincial Health Office Program Executor as follows:

> Then from the individual, yes, the side effects of ARV, the side effects are nausea, vomiting, hair loss, it can even be psychosocial disorders, and sleep disturbances. So that was the main factor that made them deterred from taking medicine, so they became LTFU earlier (H, Program Executor, Province)

Apart from the boredom of taking medication every day and the side effects of ARVs, feeling fit and healthy without any symptoms also causes PLHIV to stop taking ARVs regularly.

> I'm getting tired of taking medicine, but I'm healthy. I want to try line 2 or line 3. I'll take the medicine abroad. It's good while traveling but at the end (D, Service Provider. Banjarbaru)

The subject of an HIV service provider from the Ulin Regional General Hospital said that the lack of education for PLHIV would result in a low level of awareness always to consume ARVs.

> When we talk about awareness, it will definitely fall into the problem of communication, information, and education, so that's the first. The level of public knowledge regarding the quality of service feasibility makes people reluctant to go there. Those are the factors that affect people's awareness. So understanding, cultural, and economic factors also influence people's attention to test for HIV (A, Service Provider, Province)

The supporting factors for adherence to ARV treatment for PLHIV at the individual level that was revealed in the data collection process were due to the awareness of PLHIV themselves to always seek treatment regularly and positive thoughts from PLHIV themselves that the ARVs they consume are like supplements or vitamins to keep them healthy.

> ……..our principle is to always support and always motivate, for self-awareness usually they come with awareness knowingly to ask for medicine and want to take medication, but that's a little rich, but there is. There seems to be a lot of adherence to taking medicine; he considers it like a vitamin, a lifeline; if you don't take medicine, ma'am, you will die tomorrow, some have principles like that, but that's just a little. (M, Program Executor, Banjar)

Perceptions about the severity of infection felt by PLHIV also play a role in adherence to ARV treatment. According to one subject, people with HIV who are stage 4 will be much more compliant in ARV treatment.

> …….people who want to return are usually from stage 4, hospitalized, about to die, break, are healthy, now they are aware……..(A, Service provider. Province)

The individual level in this study is defined as the behavior performed by individuals when accessing ARV treatment services. At the individual level, behavior that can hinder adherence to ARV treatment in PLHIV is boredom with PLHIV taking ARVs. Boredom and boredom with ARV occur because PLWHA has to take medication for the rest of their lives every day, which cannot be missed.[16] In this study, it was also known that boredom and boredom were also caused by the feeling of being fit and healthy and without any symptoms. PLHIV do not identify as sick and refuse and ignore lifelong treatment. As a result, PLHIV do not routinely or stop taking ARVs.

This aligns with Mukarromah and Azinar's research, which stated that PLHIV who do not feel the severity or feel healthy about their health condition inhibits adherence to ARV treatment.[8] Side effects when taking ARVs, such as nausea, vomiting, hair loss, sleep disturbances, and psychosocial disturbances experienced by PLHIV at the start of taking ARVs, are one of the obstacles to adherence to ARV treatment. Most PLHIV cannot stand these side effects when taking ARV drugs. Generally, the side effects of ARVs are felt by PLHIV around 1 to 4 weeks after taking ARVs.[17] The cessation of people living with HIV taking ARVs

is because people with HIV feel side effects without consulting health workers. The results of this study also show that several PLHIV has minimal knowledge about HIV and ARVs. Lack of HIV knowledge will correlate with errors in decision-making. According to several subjects, many PLHIV stopped taking ARVs due to ignorance about the side effects. According to Anok[18], if the knowledge of PLHIV is low, it will also lead to low awareness in participating in the ARV program and low discipline. At the same time, the supporting factors that can increase ARV treatment adherence according to several subjects include the awareness of PLHIV to consume ARVs regularly. The awareness to always take ARVs regularly is due to positive thoughts from PLHIV about the ARVs being consumed and the stage or phase of HIV experienced by PLHIV. According to Aryastami, et al[19], motivation from within PLHIV to survive and not want to get sick is a factor that strengthens adherence to ARV treatment. That motivation will be reflected in optimism and positive thoughts. Meanwhile, adherence to ARV drugs can also be formed when PLHIV have experienced pain and decreased physical condition, so they are hospitalized after stopping ARV drugs.[16]

Level interpersonal

The feeling that PLHIV will know their HIV status by others when accessing ARVs at health services is a factor that inhibits PLHIV from coming to services so that PLHIV do not consume their ARV drugs.

> ……..From the hospital parking lot, heading to the polyclinic, the cangang (seeing) people only hope to know their status. Mr. Ali is being examined by Mr. Ali, Mr. Ali's opponent…… laughs like he's laughing. Individually self-stigmatizing…….. (F, Community officer)

Apart from stigmatizing themselves, the stigma and discrimination felt or experienced by PLHIV when they are in the family, and the environment around where they live also contributes to non-adherence in ARV treatment. Described in the subject statement as follows:

> If ostracized, it's not just the family, the wider community (R, Community Officer)

In contrast to stigma and discrimination as inhibiting factors, supporting factors for adherence to ARV treatment at the interpersonal level is social support from the family in the form of acceptance of status or treatment and social support from partners. According to the subjects from HIV service providers and community workers, social support is very much needed by PLHIV during the ARV treatment process.

> …….Yes, in all. It must be reactivated with routine medication adherence counseling; there is an SOP. If, for example, someone is 5-6 months old with ARVs, they are counseled again; yes, this includes the family's involvement as a supervisor for taking medication, which is also a must. So to serve as a supervisor reminding that taking medication must be reactivated…… (C. HIV service provider. Province)

> Family acceptance. If the family accepts it, if oh this is PLHIV, then he needs support; support from the family is necessary because they have a passion for living; the enthusiasm for treatment in the family is like they know, but they don't make it a problem but provide strong support for the families they are dealing with PLHA like that. The couple is supportive, the couple is supportive, the husband has an openness to the partner that I am, well, I am PLWHA, my status is like this, I take medicine every day. With the support from this couple, the support from the husband, maybe this is the spirit for life, the husband supports it, so there is nothing harmonious in the family relationship (K, Community Officer)

The interpersonal level in this study is how PLHIV interact with their surroundings. From the study results, it is known that the inhibiting factor for PLHIV adherence to ARVs is the feeling or fear of PLHIV that their HIV status will be known when accessing services. In addition to stigma against themselves when accessing services, PLHIV also feels stigma and discrimination when they are in their family and where they live. PLHIV, often exposed to stigma and discrimination from the surrounding environment, will make PLHIV experience frustration, so PLHIV decides to stop taking ARVs. This is in line with the results of research by Hidayat and Fitri[20] that the stigma and discrimination received by PLHIV will cause PLHIV not to want to take an HIV test, not want to know their HIV status, and not want to take ARV treatment and try to cover up their HIV status to their surroundings. Most subjects stated that family support significantly influenced adherence to ARV treatment. The study revealed that there were families, both parents and partners of PLHIV, who accepted the existence of PLHIV HIV status, families who acted as supervisors for taking medication, and

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families who accompanied PLHIV to seek treatment at services. Social support factors are widely known to significantly influence adherence to ARV treatment in PLHIV.[1,18,21–25] It was further stated that PLHIV who do not have family support have a 6.57 times chance of not experiencing changes in behavior deviations compared to PLHIV who have family support that supports ARV treatment.[26]

Community level

Subjects from HIV service providers stated that factors that have the potential to cause non-adherence in ARV treatment besides the low level of knowledge about HIV and AIDS and ARV treatment are that there are still no Peer Support Groups (KDS) in several hospitals. So far, there are only KDS in Banjarmasin City and Kab. Banjar. While in Banjarbaru City there is no KDS.

> No KDS (D. Service provider. Banjarbaru)

Whereas according to other subjects, the existence of KDS can increase adherence to ARV treatment. KDS can collaborate well with programs, and KDS can conduct education using social media with the target community to disseminate information or knowledge about ARV treatment.

> The level of public knowledge, perhaps also in terms of the quality of service feasibility, makes people reluctant to go there. Those are the factors that affect people's awareness. So knowledge, cultural, and economic factors also influence people's attention to test for HIV. On the other hand, some NGOs/KDSs play a maximum role in supporting ARV treatment, good cooperation between programs, and using social media as a forum for information about ARV treatment according to the subject's experience. Are the factors that support adherence to ARV treatment (A. Service provider. Province)

As mentioned above, KDS is vital in the ARV treatment of PLHIV as an educator, counselor, outreach, collaboration between programs, conveying information, and motivation. The following quotation clearly illustrates this:

> The man who fetches the medicine, the man who registers, the man who bails out hahaha. Yes, we have one (C, Service provider, Banjarbaru)

> Pak Edi is, for example, his BPJS is independent, and he can't come because he doesn't pay; Pak Edi is on the phone. Mr. Eddie, how do you do it? Usually, they look for it, where does Baznas go to pay it (C, Service provider, Banjarbaru)

> For supporting factors, of course, the technology is getting more sophisticated, so people at risk will easily access social media; what are the chances from and the transmission medium……(I, Community officer)

> Education, education with social media, such as TikTok, youtube, etc. (R, Community officer)

> Then there is support from KDS, then a motivational role model (N, community officer)

The AIDS Commission at the District/City level also has a vital role in compliance with ARV treatment. As happened in the Banjarbaru City KPA, which was responsive to the needs of PLHIV in health services KPA, KPA is active, picks up the ball, hahaha, yes. That's the sentence. The point is, for example, if a patient is constrained by financing, Mr. Edi. (C, Service provider, Banjarbaru)

At this community level, the inhibiting factor causing decreased adherence of PLHIV to ARV treatment is the low level of public knowledge about HIV and AIDS and ARV treatment. Several subjects stated that many PLHIVs did not get support and motivation from the community due to the community's ignorance of the HIV status of PLHIVs. PLHIV do not want to disclose their HIV status because they fear being discriminated against and negatively stigmatized by society.

According by Wati[27], the emergence of stigma and discrimination against PLHIV from the community is due to people's ignorance about HIV and AIDS, especially the transmission of HIV and AIDS and ARV treatment. As a result of this lack of knowledge, it will raise people's fear of PLWHA, which in turn results in discriminatory behavior. The low role of the community will affect adherence to ARV treatment in the form of psychological disorders, such as stress and depression, so PLHIV decides to stop taking ARVs.[8] ODHIV companions who are members of Peer Support Groups (KDS) have a dominant role in reducing cases of ARV withdrawal. PLHIV companions directly support PLHIV with home visits, monitor the health of PLHIV, assist with administering PLHIV during treatment, and provide correct

information directly or by using social media. Almost all subjects stated that KDS was a supporting factor for treatment adherence, and if it were not there, it would be an inhibiting factor. This aligns with Anok and Arsyani's research results, which prove NGOs' role in increasing adherence to ARV treatment.[18,19]

Organization level

At the organizational level, stigma and discrimination by health workers when providing services are still common.

> Yes, there is still this in society, let alone in the general public, even in health care people, this stigma still occurs (E, Service provider, Province)

In an interview with one of the program implementers from Banjarbaru City, it emerged that the factor hindering ARV treatment was that, so far, access to ARV drugs was still centralized in hospitals, so not all PLHIV could access them properly. The subject suggested that access to ARVs was no longer only at the hospital but also at the puskesmas so that the accessibility of people with HIV to access ARV drugs can be improved.

> Because we believe in eliminating HIV by 2030, I am pessimistic, sir, meaning that during the condom campaign, we are ashamed to do it, or we don't dare to do it, new cases keep coming, and there is continuous transmission, which means that now the treatment service is not only at Banjarbaru Hospital because the chances are few. In the future, ARV treatment services will probably be at the Puskesmas because there are more and more cases. I said like that, yes. Why Uncle Eddie? Because I said those living with HIV who found them didn't die, whereas, um, what is it, mushrooms in season keep popping up, people who have HIV keep popping up. In contrast, people with old ones don't die because of treatment. So there will be more and more people living with HIV in the future, and because of that, it's possible to reduce the procedure in the end, right? If you're at the hospital, you have to register; you have to pay. We don't have to pay; it's free. Maybe later in the future, it will be reduced (E, Program Executor, Banjarbaru)

Especially for prisons, the subjects also felt the lack of knowledge of treatment for prison staff as a factor affecting adherence to ARV treatment.

> My friends at the correctional facility earlier, I arrived, ma'am, can you come to the correctional facility to meet this patient, now to start treatment, directly? I spoke like that with the hospital staff, right? Yes, later, Edi, with the director's assignment letter and all that, oh well, that's it. Maybe it's ok; maybe there needs to be a knowledge transfer in the future. The Health Service is facilitating it so that, um, the officers at the correctional facility are given training on this treatment. In the end, that's it. Yes, the issue is from a long time ago, right? I found a patient in that prison, maybe in 2016; some were brought to the hospital too late and ended up dying. That means it's been treated too late, right... well... that's one; HIV patients found in correctional institutions are treated too late. That's the main thing. The second one is free; hello, yes, sir, Imad? (E, Program executor, Banjarbaru)

While the supporting factors for adherence to ARV treatment were explored at the organizational level, there was financial assistance from hospitals and the government.

> It's for access to medicine, then financial support from third parties is related to the KPA earlier, so KPA is looking for a third party willing to pay, for example, emm BPJS. Is that so…… (C, Service provider, Banjarbaru)

The fourth level of the Socio-Ecological Model is the organizational level that leads to what and how health workers provide ARV treatment services. One subject from an HIV service provider stated that health workers still give stigma and discrimination to PLHIV who access ARVs in health services. Health workers who give negative stigma and provide poor service will cause PLHIV to feel uncomfortable every time they take ARV drugs, so it becomes a barrier for PLHIV to continue treatment.[28]

One of the subjects from the Banjarbaru City Program Manager revealed a need to expand access to ARV services in hospitals and puskesmas at the sub-district level. It is hoped that with the expansion of ARV treatment services, the access of PLHIV to ARV treatment will increase; it can also reduce the costs incurred by PLHIV to access ARVs. According to Lawrence[29], the availability of facilities and infrastructure is a factor that allows a goal to be achieved. The supporting factors include the resources needed to carry out a health behavior.

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Furthermore, if related to the context of ARV treatment, these resources include the availability of ARV treatment services at puskesmas, the availability of representative rooms for ARV treatment, the availability of reliable human resources, the availability of ARV drugs, and the existence of policies and regulations that cover this. Specifically in correctional institutions, the lack of knowledge of prison staff about HIV and AIDS and ARV treatment has resulted in PLHIV not receiving ARV treatment services so that these PLHIV stop taking medication and, in some cases, die due to delays in treatment. When viewed from the legal system theory of Lawrence M. Friedman, this is caused by three components:[30]

1. The legal structure component, namely the absence of doctors and psychologists, special coaching programs, unique rooms, and books related to HIV and AIDS.
2. The legal substance component, namely the absence of special regulations and guidance governing the rights of PLHIV inmates.
3. The component of the legal culture, namely HIV and AIDS, is still seen as a disgrace by the community. Hence, the community's response, especially in prisons, is more oriented towards negatively labeling prisoners with PLHIV
4. The AIDS Commission (KPA) also has a role in synergizing several agencies in financing ARV treatment and indirectly increasing adherence to ARV treatment for PLHIV.

Although nationally and in several regions, the KPA has been in a vacuum and disbanded, in several other areas, the existence of the KPA is still there. KPA in the field has a very vital function because it plays a role in facilitating and synergizing several agencies in carrying out ARV prevention and treatment in their regions and providing what is needed by their respective KPA partners by mobilizing existing funding sources.[31]

Policy levels

The factor that is felt to impede adherence to ARV treatment indirectly is the budget that prioritizes COVID-19 countermeasures.

> Yes, we force it like us in this service. In that case, we also submit so much, especially now that the current pandemic is automatically cut off. So our activities are reduced, right sis Risma….(M, Program Executor, Banjar)

> Apart from that, there is still a perception from several SKPDs that the response to HIV and IDS is a matter for the KPA so that other agencies or SKPDs are not concerned with activities and budgeting related to HIV and AIDS.

> Yes, it's as if HIV prevention is only the health office and KPA; that's it. So there needed to be a budget. But what year was it? I invited the deputy mayor's signature to ask them to a meeting. The output of the meeting was expecting them to budget for HIV prevention from their respective budgets. A few months later, I sent my staff to visit the agencies. Has it been budgeted for? It turns out waah very difficult; people tend to hide their activities. (E, Program executor, Banjarbaru)

The supporting factor at the policy level is a BPJS policy for PLHIV, which provides free medical treatment

> Correctly. So, if we find an HIV patient, our question is whether we have BPJS. If you don't have one. OK, we'll help register if there's no fee; we'll help with the monthly payment, right? (E, program executor, Banjarbaru)

The existence of policies that provide opportunities for PLHIV to get assistance from related agencies also indirectly supports PLHIV compliance to access ARV treatment services.

> Cooperation with the Health Service and the Social Service, in 1 household, for example, there are 2-3 PLHIV, or we can include all of the ODHIV. Still, some are not ODHIV; for example, if more than 3, we are forced to ask for a certificate of incapacity that you can. (A, Community Officer)

The last level of the Socio-Ecological Model is policy. The policy obstacles put forward by several subjects were related to the minimal budget for HIV and AIDS prevention and the added presence of the COVID19 pandemic. Even though the Indonesian government is committed to the COVID19 pandemic, it will not make reductions and savings in the budget for combating infectious diseases such as HIV, AIDS, TB, and DHF.[32] However, 67 percent of the government's budget for treatment and care is considered insufficient in the case of the national HIV response; the estimated underfunding is US $ 55.2 million for 2022 - 2023 and US $ 58.4 million for 2024. Approximately 72% of the

funding gap for 2022-2023.[33] COVID19 has significantly impacted HIV interventions due to regional quarantine, movement restrictions, and closure of health service facilities.

In contrast, the impact of COVID-19 on livelihoods has been very significant due to the termination of employment. As a result of reduced income, loss of livelihoods, and closure of health services, the impact of COVID-19 has resulted in reduced access to health services that provide ARV treatment.[33]

Another problem that has become an obstacle in tackling HIV and AIDS, especially adherence to ARV treatment, is the lack of stakeholder or SKPD synergy related to activity or program budgeting. SKPD and related stakeholders believe that HIV and AIDS are a matter for the Health Service and KPA. The weak strength and authority of the KPA to coordinate the SKPDs that should be involved in the HIV AIDS prevention program are because the Provincial and Municipal KPAs are not structural institutions. However, their duties and functions are to coordinate SKPDs which are structural institutions. This position is problematic because KPA is separate from a structural institution under the regional government. So far, the role of KPA has only relied on the central role of the secretary figure and good relations between SKPD.[34]

The factors that support adherence to ARV treatment are government policies to provide health insurance to PLHIV. Health insurance is a guaranteed benefit that is the right of participants and their family members. Benefits of health insurance in the form of health services that are not tied to the amount of contributions paid and non-medical benefits include accommodation and ambulance. Health insurance benefits cover promotive, preventive, curative, and rehabilitative services, including drug and consumable services according to medical needs.[35] With health insurance, PLHIV can receive services such as pre-ARV laboratory tests (blood checks, liver function checks, kidney function checks, etc.), CD4 tests, treatment of opportunistic infections (outpatient or inpatient care), and X-rays for tuberculosis examination.[36] This is in line with several researchers' research, which proves a positive relationship between health insurance and the level of adherence to ARV treatment.[37–39]

The strength of this study lies in the information obtained, which is quite comprehensive about the factors that hinder and support adherence to ARV treatment using five levels at once without any separation. The number of subjects involved in this research is relatively large and sufficient to represent three perspectives. The results of this study also provide findings about the dominant inhibiting and supporting factors in adherence to ARV treatment so that the model of intervention provided will be more targeted.

There are two limitations in this study related to data collection. First, the inhibiting and supporting factors from the levels of the Socio-Ecological Model that were built were only felt from the perspective of program implementers, community officers, and HIV service providers, triangulation using the PLHIV perspective and the perspective of the PLHIV family, and using in-depth interviews with program implementers. Community workers and HIV service providers need to be carried out to build justification for the levels of findings so that research results can be valid. Second, the research findings identified in this study cannot be generalized to demographic groups or locations different from the study population.

CONCLUSION

This study's results indicate that many factors at the level support and hinder adherence to ARV treatment in PLHIV, so more than the intervention is needed at the individual level. The results of the discussion of the supporting and inhibiting factors of adherence to ARV treatment in PLHIV with the Socio-Ecological Model approach reinforce the importance of a multi-level structural intervention approach. Interventions to improve adherence to ARV treatment are not enough to rely solely on the individual approach of PLHIV but also the need for policy, organizational, and community interventions. Environmental changes that are macro and together will be more effective in achieving goals than a micro approach and only an individual approach. For this reason, various interventions are needed to increase adherence to ARV treatment in PLHIV. For PLHIV to undergo ARV treatment correctly and consistently, PLHIV needs support and positive contributions from all parties, both from the government. NGOs, PLHIV families, communities, and health workers.

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