

# Antiretroviral medication adherence for people with HIV/AIDS

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## Abstract

**Background.** People with HIV/AIDS require treatment with antiretrovirals (ARV) to reduce the amount of HIV virus in the body so it does not enter the AIDS stage, while people with AIDS require ARV treatment to prevent opportunistic infections with various complications.

**Objective.** This study aimed to determine the ARV medication adherence of people living with HIV/AIDS (PLWHA), get information on the facts that influence PLWHA's use of ARV, analyze factors that influence PLWHA's use of ARV, and get information about treatment management for PLWHA.

**Methods.** This study is a systematic review. Research information was obtained using the Google Scholar facility and an index of journal publications.

**Results.** Factors related to ARV adherence in PLWHA include family support, level of knowledge, peer group support, side effects of medicine, motivation, behavioral skills, psychology of PLWHA patients, boredom, stigma, health care facilities, therapy guidelines, characteristics of comorbidities, perception, gender,

health insurance, self-efficacy, social isolation, age, education level, income, duration of ARV treatment, support from health workers, spiritual motivation, and use of health services for the last three years.

**Conclusion.** Adherence and family support play important roles in healing PLWHA. PLWHA must adhere to treatment with antiretrovirals. Family support plays an important role in healing PLWHA. It is suggested to the families of PLWHA that they give motivation and comply with the advice of health workers.

## Introduction

UNAIDS (2018) data globally shows that in 2016, one million people died from HIV. Further data shows that there were 36.7 million people living with HIV at the end of 2016, with 1.8 million newly infected. In 2018, UNAIDS also reported more than 95% of new HIV infections in Eastern Europe and Central Asia and 95% of new HIV infections in the Middle East and North Africa.<sup>1</sup> According to WHO data for 2019, there were 78% of new HIV infections in the Asia-Pacific region. The highest AIDS case for the last 11 years was in 2013, with a total of 12,214 cases.<sup>1</sup>

The 5 provinces in Indonesia with the highest number of HIV cases are East Java, DKI Jakarta, West Java, Central Java, and Papua. In 2017, the majority of HIV cases also occurred in these 5 provinces, while the provinces with the highest number of AIDS cases were Central Java, Papua, East Java, DKI Jakarta, and Riau Islands. AIDS cases in Central Java account for 22% of the total cases in Indonesia. The trend of the highest HIV and AIDS cases from 2017 to 2019 is still the same, namely mostly on the island of Java.<sup>1</sup>

The cases of HIV and AIDS in men are higher than in women. In 2019, 64.50% of HIV cases were male, and 68.60% of AIDS cases were male. This is in line with the results of HIV reports by sex from 2008-2019, where the percentage of male sufferers is always higher than female. According to data from the Director General of Disease Prevention and Management.<sup>1</sup> The estimated number of people living with HIV/AIDS (PLWHA) is 543,100, the number of reported PLWHA and knowing the status is 393,538, the number of PLWHA receiving antiretrovirals (ARVs) is 160,249.<sup>1</sup> North Maluku Province is not included in the top five provinces with Indonesian cases of HIV/AIDS sufferers, however, it appears that there are still many cases, as reported by the North Maluku Provincial Health Office. The most cases are still in North Halmahera Regency, followed by Ternate City with 467 cases, this increase resulted in the addition of 45 cases in 2019.

Data from the North Maluku Provincial Health Office shows the percentage of HIV-AIDS cases in North Maluku, with the number of HIV cases (204) and AIDS (425) in 2016, the number of HIV cases (289) and AIDS (555) in 2017, and the number of HIV cases (383) and AIDS (668). Data from the City of Ternate shows that in 2015, 7 people died and 203 lived; in 2016, 27 people died and 236 lived; and 10 people died and 271 lived in 2017.

Treatment for people infected with HIV involves using anti-

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retrovirals (ARVs). The goal of this treatment is to reduce the proliferation or replication of the HIV virus, increase the CD4 cell count, and slow the progression of the disease. The factors that support the success of therapy with antiretrovirals are compliance, self-motivation, services, and social support from both the family and the environment.<sup>2</sup> ARV treatment requires PLWHA to comply and carry out regular treatment. Violations in taking medication can be fatal and can even lead to failure in the treatment process. A study on ARV use found that even one missed dose of the drug in 28 days was associated with treatment failure. The patient's adherence to taking ARVs is a very important thing to consider before starting treatment. Adherence or compliance means taking ARVs according to the doctor's instructions, including taking medication on time, according to the doctor's advice, with or without food, and avoiding drug interactions. Taking medication according to the doctor's instructions will ensure that the combination of ARVs taken has sufficient levels in the blood to protect itself within 24 hours. Family support plays a significant role in improving the quality of life of people living with HIV/AIDS. Motivation from children, wives, husbands, parents, and relatives of people with HIV/AIDS, as well as efforts to improve treatment adherence through reminding sufferers to take medication, are the keys to treatment. In this case, the family can function as a supervisor for taking medication for people with HIV/AIDS. This study aims to determine adherence in PLWHA taking antiretroviral drugs, obtain information about the facts that can influence PLWHA's use of ARVs, analyze the factors that may influence PLWHA's ARVs use and obtain information about the management of PLWHA's treatment with ARVs.

## Materials and Methods

This study uses a systematic review method to collect, identify, evaluate, and interpret the factors that influence the adherence of PLWHA to taking antiretroviral drugs. This research was carried out in March 2021, and research activities were carried out in Ternate City using the internet network using the Google Scholar search engine and journal indexers that contain publications (Research articles) that are in line with the research objectives with the keywords of PLWHA adherence in taking ARV. The inclusion criteria is article that released in last 3 years. In addition the exclusion criteria are article that not published in ISSN-index of national journal, not available in full text, and not fully scientific article. Data analysis begins by following the stages of the Preferred Reporting Items for Systematic Review and Meta-Analyses (PRISMA) method,<sup>3</sup> including identification, screening, and the feasibility of the articles to be analyzed. Articles that meet the criteria were reviewed to record the factors that influence the adherence of PLWHA taking ARVs in Indonesia. All factors found in the publication are recorded and presented with explanations in narrative form. Conclusions were drawn after obtaining data on the factors that influence adherence in PLWHA taking ARVs.

## Results

The results of the search for publications obtained the final results of publications that deserve to be included as study material, including as many as 22 articles. (Figure 1) In the process of searching for publications, we used Google Scholar with the keywords adherence to PLWHA taking ARV, and a publication deadline of the last three years. Of the 380 search results, 320 articles that did not meet the requirements were issued based on the reading of titles and abstracts that were not in accordance with the

research objectives. The next stage is article screening. 60 articles are obtained, but there was one article that cannot be accessed, so only 59 articles have the full text. The next stage is to assess the feasibility of 59 articles that have the full text, and 40 articles are excluded for several reasons, so the final number of articles that will be reviewed is 19. The 40 articles were excluded for several reasons, namely: i) articles not published in national journals with ISSN; ii) publications in incomplete articles; iii) scientific articles that were incomplete.

Next, the articles are examined. As mentioned above, the included articles are 19, and they are presented accompanied by explanations in narrative form. In the last 3 years, based on the results of published research on factors related to adherence to PLWHA undergoing therapy with ARVs that have been reported, the outline is arranged in Table 1.

## Discussion

### Family support

Relationship between family support and ARV treatment adherence in PLWHA with successive significance, namely assessment support ( $p=0.003$ ); instrumental support ( $p=0.001$ ) and emotional support ( $p=0.028$ ).<sup>3</sup> Relationship between family support and adherence to ARV treatment of PLWHA patients at UPT HIV, RSUPN Dr. Cipto Mangunkusumo Jakarta with  $p=0.034$ . Social support, including support from family, will significantly increase adherence to ARV medication.<sup>4</sup>

Ratnawati *et al.* found that the results of family support had an effect on adherence to taking ARV drugs, with a sig (p) value of 0.01.<sup>5</sup> The risk of compliance is 44 times higher compared to those who do not get family support. Family support is very influential in treatment adherence because there is encouragement from families who are willing to accept the status of the disease and support the success of the treatment.<sup>6</sup> In addition, providing sufficient information, having motivation and confidence, and understanding the importance of taking ARVs regularly.<sup>6,7</sup> The results of this study using the chi square test calculation obtained a p value 0.024 < 0.05; so it can be concluded that there is a relationship between

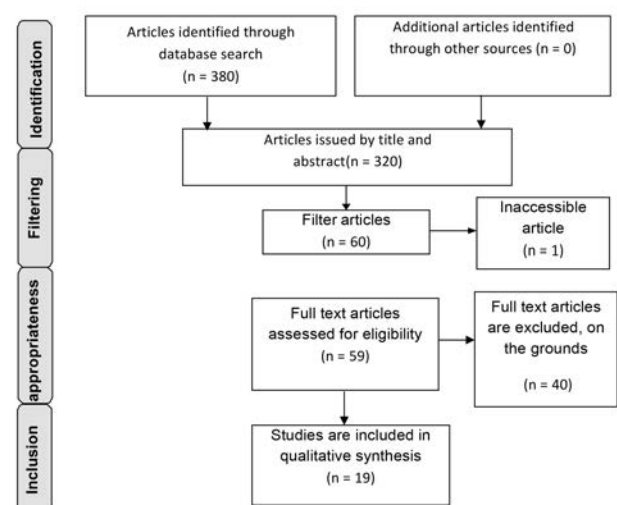


Figure 1. Flow diagram of included studies

family support and the level of adherence to ARV therapy. Srinatania *et al.* revealed that PLWHA can comply with ARV therapy and maintain their current health status because of family support.<sup>5</sup> Families encourage and increase medication use.

The results of the study by Runiari *et al.* found that the chi-square test obtained a p value of 0.000 ( $<0.05$ ) so there was a significant relationship between family support and adherence to ARVs for HIV-infected pregnant women at the Mangusada Hospital Badung.<sup>6</sup> Family support is very important for the continuity of therapy because the family is the closest person to the patient and can always monitor and supervise the patient, especially vice versa when the patient's enthusiasm for taking therapy decreases. The closeness between the two has an impact on the increase in support. The lower the support received, the more in line with the respondent's lack of contact time with family.<sup>8,9</sup>

Research by Handayani and Wahyuningsih states that the results of family studies that support PLWHA in Sehati KDS are 54%, non-supportive families are 46%, adherence to ARV drugs in Sehati KDS is 48%, and non-adherence to taking ARVs is 52%. Meanwhile, for the chi-square analysis of family support with adherence to ARV medication in people with HIV/AIDS (PLWHA) in the Sehati KDS, the  $p=0.004$  with  $\alpha=0.05$ , which means that there is a relationship between family support and adherence to ARV medication in people with HIV/AIDS in the Sehati KDS. Research by Sari *et al.* concluded that there was a relationship between compliance and support from the respondent's family with a p value of 0.004 ( $<0.05$ ).<sup>7</sup> The results of this study also show that most of the respondents have good family support with a high level of compliance compared to other levels of family support.

**Table 1. Identification of factors associated with compliance with people living with HIV/AIDS undergoing therapy with antiretrovirals.**

No	Category of factors related to adherence of PLWHA patients	Total reports from publication	Author, year
1	Family support	9	Jusriana, Gobel and Arman; 2020 Handayani and Wahyuningsih; 2020 Vidayati; 2018 Ratnawati; 2017 Runiari, Ruspawan and Budyandani; 2018 Debby, Sianturi and Susilo; 2019 Dahoklory, Romeo and Takaeb; 2019 Sari, Nurmawati and Hidayat; 2019 Srinatania, Sukarya and Lindayani; 2020
2	Level of knowledge of PLWHA	4	Habibi, Supodo and Sunarsih; 2020 Lestari, Somoyani and Surati; 2018 Talumewo, Mantjoro and Kalesaran; 2019 Yuni, Rasyid and Nursal; 2020
3	Drug side effects	3	Habibi, Supodo and Sunarsih; 2020 Srikartika, Intannia and Aulia; 2019 Jusriana, Gobel and Arman; 2020
4	Motivation	2	Srinatania, Sukarya and Lindayani; 2020 Jaemi, Waluyo and Jumaiyah; 2020
5	Stigma	2	Habibi, Supodo and Sunarsih; 2020 Yuni, Rasyid and Nursal; 2020
6	Peer group support	1	Jusriana, Gobel and Arman; 2020
7	Behavioral skills	1	Jaemi, Waluyo and Jumaiyah; 2020
8	Psychology of PLWHA patients	1	Yuni, Rasyid and Nursal; 2020
9	Boredom in the treatment period	1	Yuni, Rasyid and Nursal; 2020
10	Health care facilities	1	Ratnawati; 2017
11	Guide in therapy	1	Ratnawati; 2017
12	Characteristics of comorbidities	1	Ratnawati; 2017
13	Perception	1	Talumewo, Mantjoro and Kalesaran; 2019
14	Genre	1	Debby, Sianturi and Susilo; 2019
15	Health assurance	1	Debby, Sianturi and Susilo; 2019
16	Self efficacy	1	Kurniawan; 2019
17	Social isolation	1	Kurniawan; 2019
18	Age	1	Sari, Nurmawati and Hidayat; 2019
19	Education level	1	Sari, Nurmawati and Hidayat; 2019
20	Income level	1	Sari, Nurmawati and Hidayat; 2019
21	Duration of treatment with ARV	1	Sari, Nurmawati and Hidayat; 2019
22	Health worker support	1	Pratiwi, Rohaeti and Sukmara; 2019
23	Spiritual motivation	1	Umah and Irawanto; 2019
24	Utilization of health services	1	Hidayat and Fitri; 2020

PLWHA, people living with HIV/AIDS; ARV, antiretrovirals.



## Level of knowledge

Knowledge of PLWHA about ARVs can indirectly affect adherence to ARVs because knowledge-based behavior will be more permanent than behavior that is not based on knowledge.<sup>4</sup> The results of this study are in line with the results of other studies showing that knowledge is a strong factor in influencing adherence to PLWHA undergoing ARV treatment. Knowledge of ARVs is an important factor in adherence to ARV treatment in HIV-positive pregnant women.<sup>10-12</sup> Women with inadequate knowledge will experience treatment failure with ARVs as much as 3.5 times more than those with good knowledge. Adherence during treatment with a good ARV will also have a better effect on increasing immunity.<sup>7,8</sup> One of the efforts to increase knowledge is through counseling activities for PLWHA patients. Good knowledge will make it easier for someone to behave in a healthy manner.<sup>13,14</sup> Knowledge is also a giver of correct information to understand that is not appropriate and not conducive to a person's health condition. Behavior based on good knowledge can create obedient and long-lasting behavior in treatment with ARVs.<sup>9</sup>

## Side effects of treatment with antiretrovirals

There is a significant relationship between side effects during treatment with ARVs and adherence to treatment with ARVs ( $p=0.093$ ).<sup>10,11</sup> The results showed that the more patients felt the treatment side effects arising, the lower the value of patient compliance was.<sup>15</sup> The results of the study reported that side effects at the beginning of therapy with ARVs were very much felt by PLWHA, including feeling shaky, fever, and a rash on the skin, so that some PLWHA did not continue taking the drug for the next few days.<sup>10-12</sup>

## Motivation in undergoing treatment

Motivation is driving behavior towards a goal based on a need that can arise from within the individual or can be obtained from outside sources, such as other people/family. Motivation is very necessary in carrying out ARV therapy adherence; without motivation, ARV therapy cannot be continued. The results of the chi-square test ( $p=0.001<0.05$ ) showed a significant effect between information and adherence to taking ARVs. High motivation will affect adherence to taking ARV drugs by 68.6% more when compared with high motivation with non-adherence to taking ARV drugs, which is 31.4%. The results of the chi-square test ( $p=0.001<0.05$ ) showed a significant effect between motivation and adherence to taking ARV drugs.<sup>5,13</sup> Revealing that the main factors that increase adherence to ARVs are motivation in PLWHA to live a better quality of life, high understanding and awareness of the functions and benefits of ARVs, and strategies to consider drugs as vitamins.

## Stigma

Stigma is a negative trait attached to a person's personality due to environmental influences. Stigma is one of the main obstacles in the management of HIV/AIDS and affects the success of adherence to treatment.<sup>14</sup> Stigma has a significant relationship with adherence to treatment with ARVs in Kendari City. According to this study by Habibi *et al.* (2020),<sup>12</sup> PLWHA patients are aware that some people have a lack of knowledge and stigma about HIV/AIDS. This causes PLWHA to feel uncomfortable, cover up their disease status, and be afraid to take medicine in front of their friends or in the work environment; therefore, the time to take medicine is missed. There are also PLWHA who have to move because they do not feel comfortable with their previous place, which results in them being unable to access or continue their treatment. Stigma against PLWHA patients in society in Indonesia is

still high, and society considers HIV/AIDS a negative disease because it is caused by deviant behavior such as MSM, IDU, and having sex with many partners.<sup>15</sup>

## Peer group support

Peer Support Groups (KDS) function to provide support in the form of information about treatment and information about the disease and provide motivation to survive by obediently taking ARVs. The results of research by Jusriana at the YPKDS Group Care Foundation in Makassar City showed that there was a relationship between peer group support and adherence to treatment with ARVs ( $p=0.03$ ).<sup>11</sup>

## Behavioral skills of people living with HIV/AIDS

Behavioral skills are the individual's ability to take preventive action, ensuring that a person has the skills, tools, and strategies to behave based on beliefs (self-efficacy) and the feeling that he or she can influence the situation (perceived behavior control) to perform the behavior. Behavioral skills are prerequisites that determine whether good information and motivation can encourage effective preventive action or behavior change.<sup>13</sup> There is an effect of behavioral skills on adherence to taking ARV drugs. Given the results of research that has been carried out at the VCT Polyclinic of PAD Gatot Soebroto Hospital in Jakarta on HIV patients, behavioral skills that have an influence on non-adherence in HIV patients to taking ARV drugs suggest that HIV patients need counseling about skills to obtain and manage their own therapy. ARVs, which minimize side effects, can help HIV patients increase their adherence to ARV drugs. According to Fisher,<sup>16</sup> these behavioral skills include the skills to obtain and self-administer ARVs, to incorporate them into the social ecology regimen of daily life, to minimize side effects, to renew adherence to ARV therapy as needed, and to obtain social and instrumental support for compliance. They also represent self-reinforcement to comply over time.

## Psychology of people living with HIV/AIDS

Yuni *et al.* reported on the psychological analysis of the relationship between PLWHA and taking ARVs.<sup>15</sup> Patients who have a good psychological category have high ARV treatment adherence (74.2%), which is greater than those who have poor psychology (46.4%). The results also showed that there was a significant relationship between the patient's psychology and ARV treatment ( $p=0.041$ ). PLWHA who have just found out about their disease condition often experience psychological problems that can be overcome by joining the Peer Support Group (KDS). This group will provide motivation for PLWHA to still have a second chance by taking ARVs with patient compliance in treatment.<sup>15</sup>

## Burnout during the treatment period

Another factor that becomes an obstacle in achieving compliance with PLWHA patients undergoing treatment with ARVs is saturation. Saturation is a feeling that comes from the PLWHA. This boredom attitude can be due to the fact that the patient has never been in AIDS status and is tired of taking medication continuously and for life.

## Healthcare facilities

Research by Ratnawati *et al.* shows that from the results of the chi square statistical test with 95% CI ( $= 5\%$ ), the results are significant ( $p=0.027$ ),<sup>17</sup> which means that healthcare facilities are related to adherence to taking ARV drugs in PLWHA. In this study, most of the respondents stated that it was difficult to obtain ARVs in healthcare institutions. This is because most respondents feel

ashamed to take ARVs at the government hospital closest to their place of residence. The shame is based on the fear that their identity as a person with HIV/AIDS will be known by those closest to them, so they prefer to get ARV tablets outside the city.

### Availability of therapy guide

Research by Ratnawati *et al.* shows that the results of the chi square statistical test with 95% CI ( $\alpha=5\%$ ) are sig ( $p$ )=0.000,<sup>17</sup> which means that therapeutic guidance is related to adherence to taking ARV drugs in PLWHA. Before ARV therapy, PLWHA must be prepared carefully, with adherence counseling to facilitate understanding. Then, PLWHA are given ARV therapy guidelines, which include the types of drugs used in the combination, the number of pills to be taken, the characteristics of the drugs and side effects, and the ease of obtaining ARVs.

### Characteristics of comorbidities

Research by Ratnawati *et al.* (2017) showed that, from the results of the chi square statistical test with 95% CI ( $\alpha=5\%$ ), sig ( $p$ )=0.001,<sup>17</sup> which means that the characteristics of comorbidities are related to adherence to taking ARV drugs in PLWHA. The risk of adherence is 6.6 times higher compared to those without comorbid characteristics. From the results of the study, it was found that 56.6% of respondents did not have comorbidities, while 43.4% had comorbidities. Comorbidities that often occur in people with HIV/AIDS are opportunistic infections.

### Perception

Perception is a follow-up action from one's knowledge. Perception is one of the factors that influences adherence in PLWHA using ARVs.<sup>9</sup> Research conducted on a population of PLWHA at the Tikala Baru Health Center in Manado City in 2019 showed that there was a significant relationship between perception and adherence to treatment with ARVs ( $p=0.016$ ). Patients who have good perceptions have a tendency to be 5 times more obedient than those who have poor perceptions. Good perception shows obedient behavior when undergoing ARV therapy. The basis for a person's taking action is based on experience, perception, understanding, interpretation, or a certain situation.<sup>9</sup>

### Gender

The results of Debby *et al.* show that there is a relationship between gender and adherence to medication in PLWHA, namely that female patients are more obedient to taking ARVs compared to men in the population in the HIV Integrated Service Unit, Dr. Cipto Mangunkusumo Jakarta, in 2016 ( $p=0.040$ ). This shows that women have a better response to HIV treatment than men. Women have a more caring attitude because, when experiencing stress, women prefer to find friends to socialize with, support, and something that can make them better, while men prefer to find solutions or solve problems themselves.<sup>4</sup>

### Health insurance

Debby *et al.* looked into the connection between health insurance and ARV treatment adherence.<sup>4</sup> The results of research conducted at the HIV UPT Dr. RSUPN. Cipto Mangunkusumo Jakarta in 2016 showed that PLWHA who used private financing had a higher percentage (50.4%) of adhering to ARVs compared to patients who used insurance treatment financing (47.5%). A  $p=0.023$  indicates that there is a significant relationship between health insurance and adherence to taking ARV drugs in this population. Patients who use health insurance have a low level of com-

pliance because they have difficulty extending coverage, and they do not want to disclose their health status in other hospitals.

### Self efficacy

The stigma experienced by PLWHA can affect their self-esteem, so they will limit themselves to socializing and self-actualization. In general, the impact of stigma will lead to feelings of shame and have an impact on negative emotional responses, including self-efficacy and social isolation behavior.<sup>14</sup> The results of research conducted on research samples diagnosed with HIV/AIDS in the working area of the Puskesmas Turen Subdistrict, Malang City, namely 44 PLWHA, indicated that there was a significant correlation between self-efficacy and adherence to treatment with ARVs ( $p=0.018$ ). In addition, there is a positive correlation, which means that the higher the self-efficacy, the higher the level of patient compliance in treatment with ARVs, and vice versa.<sup>14</sup> Self-efficacy is an important indicator for the implementation of HIV/AIDS prevention and control programs. Self-efficacy shows a person's ability to carry out their duties. PLWHA who have active and persistent self-efficacy will try to follow instructions from health workers. Self-efficacy can also reflect self-confidence to comply with medication rules, control side effects, and accept things related to existing health problems.<sup>14</sup>

### Social isolation

People living with HIV who experience social isolation will experience a high risk of non-compliance and failure in treatment with ARVs. PLWHA who have low self-esteem and social isolation will find it difficult to tell their family, closest people, and health workers about their health conditions. This will undoubtedly have an impact on PLWHA's adherence to ARV treatment.<sup>14</sup> The results of research conducted by Kurniawan *et al.* (2019) explained that there was a significant correlation between social isolation and adherence to treatment with ARVs ( $p=0.000$ ) and a negative correlation coefficient.<sup>14</sup> This means that the higher the social isolation, the lower the adherence to ARV treatment, and vice versa. PLWHA who cover up their illness from others will create a difficult situation to take medication according to a set schedule, so they have a tendency to fail in medication adherence with ARVs.<sup>14</sup>

### Age

Research conducted by Sari *et al.* in 2019 showed that there was a significant relationship between ARV therapy adherence in PLWHA and their age,<sup>7</sup> with a  $p=0.034$  ( $<0.05$ ), so it was concluded that the older the patients, the more adherent they were to the therapy program with ARVs. The results of this study also show that the highest level of compliance is in the age range of 34-46 years.

### Education level

The results of the analysis test from a study conducted by Sari *et al.* showed that there was a significant relationship between the compliance of PLHIV patients and their level of education ( $p=0.000$ ).<sup>7</sup> Researchers assume that high education and knowledge encourage respondents to take responsibility for HIV/AIDS treatment, thus encouraging patients to improve their adherence.

### Income level

Research by Sari *et al.* shows that there is a relationship between income and the respondent's compliance in undergoing ARV therapy, with  $p=0.000$  ( $<0.05$ ).<sup>7</sup> The results of the study concluded that the higher the patient's or respondent's income, the more they would comply with the ARV therapy program. The

results of this study indicate that respondents with an income of \$1 million had the highest compliance. The researcher believes that even though the respondents' income is low, they can still adhere to treatment with the help of their closest family.

### Duration of treatment with antiretrovirals

The results of the study by Sari *et al.* reported that there was a relationship between adherence to ARV therapy and the duration of the treatment program involving research respondents at the Cendana Poly Hospital Ngudi Waluyo Wlingi, with  $p=0.042$  ( $<0.05$ ).<sup>7</sup> It was concluded that the longer the patients followed the ARV therapy program, the more they adhered to it.

### Support for health workers

HIV/AIDS patients must continuously take ARV therapy to maintain their immunity. Therefore, the use of ARVs requires high adherence to achieve therapeutic success and prevent resistance. The use of ARVs requires a high level of adherence to achieve therapeutic success, prevent resistance, suppress HIV to undetected levels, improve quality and survival, improve overall health, and reduce the risk of HIV transmission. Nurses are one of the health workers who interact with patients the most and have an obligation to help patients, including by providing social support. The role of nurses in health promotion is to prevent PLWHA from getting into a worse condition by inviting individuals and the environment to behave positively towards maintaining and improving health, increasing the motivation and commitment of PLWHA to be more compliant with ARVs. Compliance counseling in conjunction with a positive relationship with health professionals and their friendly, kinship-filled attitude and behavior can comfort PLWHA. From the results of the chi square test,  $p=0.027$  using an  $\alpha$  of 5% ( $\alpha=0.05$ ), it can be concluded that  $H_0$  is rejected, which means that there is a relationship between the support of health workers and adherence to taking ARVs for HIV in Youth Prisons. Class II A Tangerang with  $POR=7,000$  (95%  $CI=1,493-32,818$ ), which means that patients who do not receive support from health workers are 7 times more likely to be non-adherent to taking ARVs compared to HIV patients who receive support from health workers.<sup>18</sup>

### Spiritual motivation

Spiritual motivation has an effect on adherence to taking medication because it can increase belief in attitudes and compliance, so that there is a change in attitudes and behavior toward taking drugs. Adherence to therapy is critical to getting the full benefit of ARV therapy, including maximizing and suppressing viral replication, reducing CD4 cell damage, preventing viral resistance, boosting immunity, and slowing disease progression. According to the results obtained from the analysis with the Wilcoxon Signed Ranks statistical test, if a significant value = 0.000 means  $p<0.05$ , then  $H_1$  is accepted, meaning that there is an influence of spiritual motivation on adherence to taking ARV drugs in HIV/AIDS patients. In this study, researchers provide spiritual motivation that causes good relationships with sufferers.<sup>19</sup>

### Utilization of health services

Utilization of health facilities is a form of behavior by a person seeking health facilities to improve his health status. The lack of use of health facilities is a result of a number of factors, including predisposing factors like stigma, attitudes, knowledge, and beliefs. Useful factors include the availability of transportation options, the existence of laws and community commitments to support these behaviors, as well as the attitudes and behaviors of families, health professionals, and community leaders. The results of the study

using chi-square obtained  $p=0.000$  ( $p<0.05$ ), indicating a relationship between the use of health services and the adherence to taking medication for PLWHA in the working area of the Temindung Community Health Center, Samarinda. According to the researcher's assumption, there is a strong link between PLWHA's use of health services and their adherence to taking ARVs. This is supported by the results of interviews with people with STDs and the Mahakam NGO, which helped with this study by getting information, which showed that respondents who stick to taking ARVs feel the benefits of health services through their health workers in the form of attention, support, enthusiasm, and attention in carrying out the treatment process. Even though the distance from the respondent's house to the health care facility is quite far, they still come to take medicine because health workers remind them to take medicine.<sup>20-22</sup>

### Conclusions

There were 380 articles identified through a Google Scholar search with a time limit of the last 3 years accessed in March 2021 and one additional article through other sources, which was filtered into 59 articles, and then 40 articles were excluded so that the total number of articles was 19. Compliance and family support play an important role in healing PLWHA.

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