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The Effect of Health Education on Arv Therapy Adherence to Odha in The Ponggok Blitar Health Center Area

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Abstract

Adherence to Antiretroviral therapy (ARV) in People with HIV/AIDS (ODHA) is an important factor in suppressing viral replication and improving patients' quality of life. However, compliance is often low due to a lack of understanding and motivation. Health education is seen as an effective strategy to improve patient adherence to ARV therapy. This study uses a pre-experimental design with a one-group pre-test and post-test design. The research sample of 44 ODHA respondents was selected using a simple random sampling technique. Interventions in the form of health education about HIV/AIDS, the importance of ARV therapy, the benefits of adherence, and the risk of non-compliance were provided through interactive counseling. Data were analyzed using the Wilcoxon Signed Ranks Test to see differences in compliance before and after education. Before the intervention, all respondents (100%) were in the low compliance category. After the intervention, most respondents (86.4%) improved to moderate adherence. The results of the Wilcoxon test showed that none of the respondents experienced a decrease in compliance (negative ranks = 0), all respondents (positive ranks = 44) experienced an increase, with a value of Z = -6.289 and a p-value = 0.000 (p < 0.05). The results of the study prove that health education has a significant influence on increasing ARV therapy adherence in ODHA. Comprehensive education is able to increase knowledge, awareness, and motivation of patients to be more consistent in undergoing therapy. Thus, health education needs to be used as a routine intervention in HIV/AIDS control programs in primary services.

Keywords: Health Education, Compliance, ARV, ODHA.

INTRODUCTION

Adherence to antiretroviral (ARV) therapy is a crucial aspect of HIV/AIDS management, as the success of treatment is highly dependent on the consistency of people living with HIV (PLHIV) in taking their medication according to the prescribed schedule. However, maintaining adherence to ARV therapy remains a major challenge for many PLHIV. Various factors have been identified as causes of poor adherence, including limited knowledge about the importance of therapy, uncomfortable drug side effects, social stigma attached to PLHIV, and inadequate support from family and the surrounding environment (Ningsih in Nugroho, B. A. & Others, 2021). Non-adherence to ARV therapy can lead to serious consequences, one of which is treatment failure, characterized by an increase in viral load in the body.

Non-adherence to antiretroviral therapy is one of the main factors hindering the successful management of HIV/AIDS. When individuals with HIV do not take their medication regularly as prescribed, viral load increases and CD4 cell counts decrease significantly. This condition weakens the immune system and increases susceptibility to opportunistic infections such as pneumonia, candidiasis, and tuberculosis. In the long term, this situation worsens clinical status and reduces the overall quality of life of PLHIV.

In addition, non-adherence to treatment can lead to the development of viral resistance to ARV drugs. When the virus is exposed to sub-therapeutic drug levels due to inconsistent intake, viral mutations are likely to occur. These mutations may result in virological failure, namely the inability of therapy to suppress viral load below the detectable threshold. Consequently, patients must be switched to second- or third-line regimens, which are clinically more complex, more expensive, and tend to have more severe side effects. Importantly, high viral load caused by non-adherence also increases the risk of HIV transmission to others through sexual contact, blood transfusion, and mother-to-child transmission. Therefore, improving adherence to ARV therapy through education, social

support, and strengthened health services is a strategic step to ensure the effectiveness of HIV/AIDS treatment and to reduce viral transmission in the community.

Globally, according to, approximately 39 million people are living with HIV, of whom 29.8 million have access to ARV therapy. In Asia, particularly Southeast Asia, the HIV/AIDS epidemic remains a public health challenge. Report recorded approximately 3.6 million HIV cases in this region, with a high proportion of patients showing poor adherence to ARV therapy, as adherence levels remain below the ideal category. Based on the Indonesian Ministry of Health report (2023), by the end of 2022 there were 543,100 recorded HIV cases, but only about 279,000 individuals were actively receiving ARV therapy.

In East Java Province, HIV/AIDS remains a major health problem. Data from reported more than 70,000 HIV cases by the end of 2023, placing the province second highest in Indonesia. A considerable number of patients are non-adherent to ARV therapy, and healthcare workers at primary health centers face challenges in ensuring that PLHIV not only obtain medication but also receive adequate assistance and education. In 2024, Blitar Regency recorded 193 new HIV/AIDS cases, slightly decreasing from 199 cases in 2023. Of these, 124 were male and 69 female. The most affected age group was 25–49 years (111 cases), followed by those over 50 years (54 cases). The 20–24 age group accounted for 17 cases, 15–19 years for 9 cases, and one case each in the 5–14 years and toddler groups.

During January–October 2024, 138 new cases were recorded, consisting of 94 HIV cases and 44 AIDS cases. Of these, 93 were male and 45 female. Men who have sex with men (MSM) accounted for 22 cases, and clients of commercial sex workers accounted for 19 cases. During this period, 17 deaths due to HIV/AIDS were recorded. At Ponggok Community Health Center, more than 57 active PLHIV were recorded by the end of 2023. Internal evaluation showed that adherence to ARV therapy remained low: only 34 patients were compliant with medication collection and routine follow-up, while 23 patients frequently delayed medication pickup, did not attend regular check-ups, or stopped taking medication without consulting healthcare workers (Ponggok Health Center Data, 2023).

Based on a preliminary study conducted in April 2025 involving 57 PLHIV, low levels of knowledge about ARV therapy were identified, and 40 participants had never received direct education from healthcare workers. Most of the information they obtained came from peers or social media, which is not always accurate. Interviews with several respondents revealed that seven individuals did not take their medication regularly because they felt bored with daily drug consumption. These findings indicate the need for more structured health education.

Various program evaluations have found that many PLHIV are lost to follow-up, mainly due to lack of understanding and fear of social stigma. Although treatment coverage has improved, major challenges remain, particularly in treatment adherence. Poor adherence increases the risk of treatment failure, drug resistance, transmission to others, and mortality. Studies show that the ideal level of adherence to ARV therapy is ≥95% to achieve optimal treatment outcomes. However, many PLHIV are unable to maintain this level due to factors such as social stigma, drug side effects, and limited health education and support. Adherence to ARV therapy remains a major challenge in the national HIV/AIDS control program. Factors influencing non-adherence include low knowledge, lack of family support, psychological conditions, and social stigma. Research indicates that better understanding of HIV and ARV among PLHIV is associated with higher adherence to therapy.

Structured and continuous health education is one of the main strategies that can be implemented by healthcare workers in primary healthcare facilities, such as community health centers, to improve ARV adherence among people living with HIV/AIDS (PLHIV). Health education is one of the most effective interventions for improving knowledge, attitudes, and health behaviors, including among PLHIV. When health education is delivered in a structured, consistent, and patient-centered manner, its impact on ARV therapy adherence is highly significant.

Health education provides accurate information about HIV, the function of ARV, mechanisms of action, the importance of regular medication intake, and the risks of non-adherence. PLHIV with

good knowledge are more likely to understand the consequences of discontinuing or not complying with treatment. Studies indicate that improved knowledge is the initial step toward positive behavioral change. Health education also helps PLHIV accept their health condition more positively, making them more open, less fearful or ashamed, and more prepared to undergo long-term treatment. This self-acceptance is essential in building internal motivation to remain adherent to therapy.

With adequate education, PLHIV become more confident in their ability to manage their treatment and health. They are encouraged to maintain medication regularity, attend routine follow-ups, and actively consult healthcare providers. High self-efficacy has been shown to be strongly correlated with adherence to ARV therapy. PLHIV who lack education are more likely to discontinue treatment because they perceive it as unimportant or do not understand its long-term effects. Continuous health education encourages them to stay connected with health services and prevents unilateral discontinuation of therapy (WHO, 2022).

One of the greatest barriers to ARV adherence is stigma, both from society and internalized by PLHIV themselves. Health education involving family or community members can help change negative perceptions of HIV/AIDS, creating a more supportive environment that enables PLHIV to undergo therapy more comfortably. PLHIV who adhere to ARV therapy tend to have low or undetectable viral loads, enabling them to remain healthy, work productively, and prevent transmission to others. Thus, health education not only affects short-term adherence but also improves overall quality of life.

Improved ARV adherence through health education directly contributes to reduced HIV/AIDS mortality and decreased risk of transmission to partners or infants. This also supports the achievement of the UNAIDS 95-95-95 global targets: 95% of PLHIV know their status, 95% of those diagnosed receive ARV therapy, and 95% of those treated achieve viral suppression.

Health education has been proven to be an important intervention in increasing awareness and healthy behavior among PLHIV. In many cases, lack of knowledge about the importance of therapy and correct ARV consumption is the main cause of non-adherence. In addition, strong social stigma toward PLHIV discourages them from routinely accessing health services and accurate information about ARV therapy. Empathetic educational approaches can also reduce anxiety and improve acceptance of HIV status. Through interactive educational methods, PLHIV become more open to discussing barriers they face, including drug side effects and psychosocial problems.

Health education for PLHIV aims not only to increase knowledge but also to strengthen self-efficacy, which is a key psychological factor in improving adherence to antiretroviral therapy. Individuals with high self-efficacy are more capable of overcoming treatment barriers and show greater motivation to adhere consistently to therapy. Furthermore, comprehensively designed educational programs have been proven to improve treatment adherence and clinical outcomes among PLHIV. Therefore, educational interventions based in communities or healthcare facilities are essential to empower PLHIV to gain better control over their health.

Moreover, strong social stigma toward PLHIV continues to discourage them from accessing routine healthcare services and accurate information regarding ARV therapy. Hence, education is not only important for PLHIV but also for the general public to reduce stigma and discrimination, which indirectly increases PLHIV engagement with healthcare services.

Previous research by demonstrated that health education significantly improves ARV adherence. In that study, PLHIV who received health education experienced a 20–30% increase in adherence within three months. This finding reinforces the assumption that education plays a crucial role in shaping positive behaviors among PLHIV, including maintaining regular therapy. Effective health education not only provides information but also builds motivation, enhances self-efficacy, and reduces fear and stigma, which are major barriers to adherence.

Based on this background, this study is important to analyze the extent to which health education influences ARV therapy adherence among PLHIV in the working area of Ponggok Community Health Center. The results are expected to serve as a basis for planning more targeted and effective

educational interventions and to support the success of HIV/AIDS control programs at the primary healthcare level. In addition, this study contributes scientifically to the development of community nursing practice and strengthens evidence-based health promotion programs.

RESEARCH METHODS

This study employed a quantitative approach using a pre-experimental design, specifically a one-group pre-test and post-test design. The independent variable in this study was health education, while the dependent variable was adherence to ARV therapy. The population of this study consisted of all people living with HIV/AIDS (PLHIV) at Ponggok Community Health Center, Blitar, totaling 57 respondents. A simple random sampling technique was applied, resulting in a sample size of 44 respondents.

The study was conducted at Ponggok Community Health Center, Blitar, from May to June 2025. Data analysis was performed using the Wilcoxon statistical test.

Table 1. Respondent Characteristics

No.	Age (Years)	N	%
1	31–39	13	29.5
2	40–49	13	29.5
3	50–59	9	20.5
4	> 60	9	20.5
Total		**44**	**100.0**
No.	**Gender**	**N**	**%**
1	Male	23	52.3
2	Female	21	47.7
Total		**44**	**100.0**
No.	**Education Level**	**N**	**%**
1	Elementary School	3	6.8
2	Junior High School	19	43.2
3	Senior High School	22	50.0
Total		**44**	**100.0**
No.	**Occupation**	**N**	**%**
1	Unemployed	3	6.8
2	Farmer	14	31.8
3	Laborer/Worker	18	40.9
4	Self-employed	9	20.5
Total		**44**	**100.0**
No.	Duration of Illness	**N**	**%**
1	< 1 Year	12	27.3
2	1–3 Years	17	38.6
3	3–5 Years	9	20.5
4	> 5 Years	6	13.6
Total		**44**	**100.0**

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RESULTS AND DISCUSSION

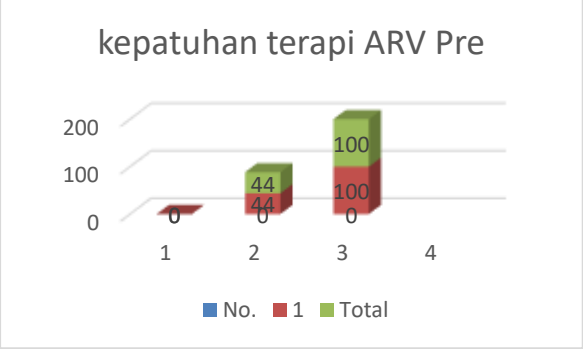

Figure 1. ARV Therapy Adherence

Based on the table above, it is known that all respondents in this study had low adherence before receiving Health Education, namely 44 respondents (100%).

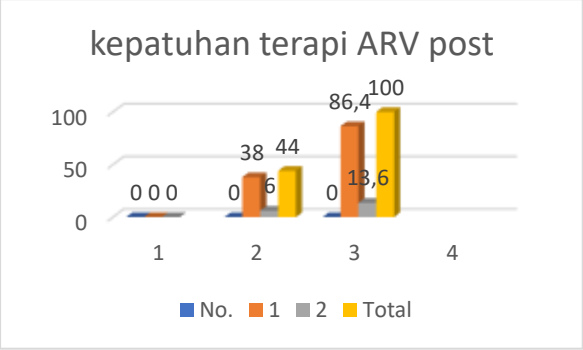

Figure 2. Post-ARV Therapy Adherence

The table above shows that almost all respondents, 38 respondents (86.4%), had moderate adherence after receiving health education.

Table 2. Wilcoxon Signed Ranks Test

Test Statisticsa

	Post Compliance - Pre Compliance
Z	-6,289b
Asymp. Sig. (2-tailed)	,000

a. Wilcoxon Signed Ranks Test
b. Based on negative ranks.

The Wilcoxon Signed Ranks Test results showed that no respondents experienced a decrease in adherence after the health education intervention (negative ranks = 0), while all respondents (100%) experienced an increase in adherence (positive ranks = 44). Furthermore, no respondents' adherence remained the same before and after the intervention (ties = 0). The statistical test value obtained was Z = -6.289 with a significance of p = 0.000 (p < 0.05), indicating a significant difference between ARV therapy adherence before and after health education. Thus, health education has been proven effective in improving ARV therapy adherence among people living with HIV (PLWHA) in the Ponggok Blitar Community Health Center (Puskesmas) work area.

Discussion

The results showed that all respondents had low adherence to antiretroviral therapy (ARV) before health education. Respondent characteristics indicate that the majority were in the productive

age range (31–49 years), predominantly male, had a secondary education (high school), worked as laborers/craftsmen, and had been HIV-positive for 1–3 years. These factors align with the findings of various studies showing that demographic and socioeconomic characteristics, such as age, gender, education, occupation, and disease duration, have a strong influence on ARV therapy adherence.

In addition to demographic factors, psychosocial aspects have also been shown to play a significant role in determining adherence. Previous studies have highlighted that self-efficacy, trust in treatment, social support, and levels of stigma are significantly associated with treatment adherence. Stigma and psychological distress such as depression often hinder people living with HIV (PLWHA) from regularly adhering to therapy, including fear of being seen by others while taking medication or concerns about environmental responses. These findings suggest that low adherence in the initial stage is influenced not only by limited medical understanding but also by a complex interaction of psychosocial and environmental factors.

After receiving health education, adherence significantly increased, with almost all respondents moving into the moderate adherence category. The Wilcoxon Signed Ranks Test results showed that no respondents experienced a decrease in adherence, and all respondents experienced an increase. A significance value of $p = 0.000$ confirms that health education is an effective intervention in improving ARV therapy adherence. These results are consistent with numerous studies and meta-analyses showing that health education interventions can double the likelihood of medication adherence and are effective in digital, behavioral, and peer-led contexts.

The success of health education in improving adherence can be explained through health behavior theoretical frameworks, such as the Health Belief Model (HBM), the Health Action Process Approach (HAPA), and the I-Change model. The HBM states that adherence is influenced by an individual's perception of disease severity, self-vulnerability, the benefits of therapy, perceived barriers, and self-efficacy. Health education strengthens the perceived benefits of ARV therapy, reduces psychological and social barriers, and increases patient self-efficacy. HAPA emphasizes that behavior change relies not only on intention but also requires action planning and strategies to overcome barriers—support for which is reflected when patients begin to integrate medication use into their daily routines. The I-Change model expands this perspective by demonstrating that education builds awareness, increases motivation, and ultimately encourages action by strengthening attitudes, norms, and self-efficacy.

Furthermore, previous qualitative research confirms that self-awareness is central to maintaining long-term adherence. People living with HIV who have a high awareness of the urgency of therapy are better able to develop adaptive strategies such as using reminders, family support, or adjusting medication timing. Innovative approaches such as cue-contingent incentives have also been shown to form more automatic therapeutic habits.

Researchers believe that the success of the educational intervention in this study stems not only from increased knowledge, but also from education's ability to build motivation, strengthen self-efficacy, and reduce psychological barriers and stigma. Health education at the primary care level, such as community health centers (Puskesmas), is highly strategic because it is close, personal, and can be implemented continuously. With consistent education, patients not only understand the importance of adherence but also internalize it as a habit and a personal responsibility.

Furthermore, improving adherence to ARV therapy ideally requires more than just individual education, but also social support from family and community members, as well as ongoing involvement of healthcare providers. Strong social support has been shown to increase the confidence and readiness of people living with HIV (PLWHA) to undergo long-term therapy. Therefore, researchers believe that health education should be an integral part of PLWHA mentoring programs, combined with psychosocial approaches and community support to ensure sustained adherence and improve patients' quality of life.

Overall, this study confirms that health education is a simple, easy-to-implement intervention that has a significant impact on improving adherence to ARV therapy. These findings can serve as a

basis for primary healthcare providers to integrate education as a routine intervention in HIV/AIDS management, especially in areas with low adherence rates.

CONCLUSIONS

Based on the results of research conducted on the Effect of Health Education on ARV Therapy Adherence among People Living with HIV in the Ponggok Blitar Community Health Center area, the following conclusions can be drawn:

1. Before receiving health education, all respondents (100%) were in the low adherence category for ARV therapy.
2. After receiving health education, almost all respondents (86.4%) experienced an increase in adherence to ARV therapy, indicating a positive change in adherence behavior.

The Wilcoxon Signed Ranks Test results demonstrated a significant difference between adherence before and after health education ($p = 0.000 < 0.05$). Therefore, it can be concluded that health education is effective in improving adherence to ARV therapy among people living with HIV in the Ponggok Blitar Community Health Center area.

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