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The Relationship Between Knowledge Level and Adherence to Antiretroviral Therapy Among HIV Patients

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ABSTRACT

Background: Adherence to antiretroviral (ARV) therapy is essential for the treatment of HIV. Knowledge about HIV and ARV therapy plays a significant role in influencing adherence. This study explores the relationship between the level of knowledge about HIV and ARV therapy and adherence to ARV treatment among people living with HIV (PLWHA).

Methods: An analytical observational study with a cross-sectional design was conducted among HIV patients attending a Voluntary Counseling and Testing (VCT) clinic. A structured questionnaire assessed participants' knowledge about HIV and ARV therapy, while the Medication Adherence Scale (MMAS-8) was used to measure adherence. Spearman's rank test was employed to analyze the correlation between knowledge and adherence. The study included 60 respondents who met the inclusion criteria.

Results: The majority of participants (60%) had good knowledge of HIV and ARV therapy. A significant positive correlation was found between knowledge level and adherence to ARV therapy (r=0.572, p<0.001). Participants with higher levels of knowledge demonstrated better adherence to therapy.

Conclusion: There is a moderate positive correlation between knowledge of HIV and ARV therapy and adherence to ARV treatment. Enhancing patient knowledge about HIV and its treatment could improve adherence to therapy. Educational programs and counseling should be prioritized to support PLWHA in adhering to their ARV regimen.

Keywords: HIV, Antiretroviral Therapy (ARV), Knowledge, Adherence, PLWHA

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INTRODUCTION

Human Immunodeficiency Virus (HIV) is a global health issue that primarily attacks immune cells, leading to acquired immunodeficiency syndrome (AIDS) if left untreated. Since the first reported cases in the 1980s, HIV has become a major health concern worldwide, with an estimated 38 million people living with HIV as of 2020 [1]. In Indonesia, the prevalence of HIV has been steadily increasing, with the Ministry of Health reporting over 500,000 cases by 2022 [2]. Effective management of HIV requires lifelong antiretroviral (ARV) therapy, which is vital for reducing viral load, preventing opportunistic infections, and improving the quality of life for people living with HIV/AIDS (PLWHA) [3].

However, achieving optimal outcomes from ARV therapy depends significantly on adherence to the prescribed treatment regimen. Non-adherence to ARV therapy remains a major challenge in HIV care and can lead to viral resistance, treatment failure, and increased transmission risk [4]. Several factors influence adherence, including the patient's knowledge of HIV and its treatment [5]. Previous studies have shown that better knowledge about the disease and the benefits of ARV therapy can positively affect adherence to treatment [6]. Understanding the correlation between HIV knowledge and ARV adherence is crucial in designing interventions that can improve treatment outcomes.

The present study aims to investigate the relationship between knowledge of HIV and ARV therapy and adherence to ARV treatment among PLWHA in a clinical setting.

METHOD

This study used an analytical observational design with a cross-sectional approach to assess the correlation between knowledge of HIV and antiretroviral (ARV) therapy and adherence to ARV treatment. The study was conducted among people living with HIV/AIDS (PLWHA) attending the Voluntary Counseling and Testing (VCT) clinic at Dr. Moewardi Hospital in Surakarta, Indonesia. The inclusion criteria were HIV-positive patients aged 18 years or older, who were on ARV therapy for at least 6 months, and had complete medical records. Patients who refused to participate in the study were excluded.

Sample Size and Sampling

The sample size was calculated using the Rule of Thumb formula, which indicated a minimum of 58 participants. A total of 60 participants meeting the inclusion criteria were recruited using purposive sampling. Purposive sampling was chosen to ensure that participants had direct experience with HIV and ARV therapy.

Data Collection

Data were collected through structured questionnaires, which included two sections: demographic information (age, sex, education level) and knowledge about HIV and ARV therapy. The knowledge section was assessed using a 20-item questionnaire that covered topics such as HIV transmission, ARV medication types, side effects, and adherence importance. Participants' adherence to ARV therapy was measured using the 8-item Morisky Medication Adherence Scale (MMAS-8), which categorizes adherence into low (<6), moderate (6–7), and high (8) adherence.

Statistical Analysis

The data were analyzed using SPSS version 26 (IBM Corp., Armonk, NY, USA). Spearman's rank correlation test was used to assess the relationship between knowledge level and adherence to ARV therapy. A significance level of $p<0.05$ was considered statistically significant.

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Ethical Considerations

The study was approved by the Institutional Review Board (IRB) of Dr. Moewardi Hospital (Approval No: 679/III/HREC/2024). Written informed consent was obtained from all participants before data collection. The study was conducted in accordance with the Declaration of Helsinki, and participants were assured of confidentiality and the voluntary nature of participation.

RESULT

We found that HIV infection mostly affected people aged between 36 and 45 years old (late adults). Of the total 60 respondents, 31 of them (51.7%) were late adults, followed by young adults (41.7%) and adolescents (6.7%). The highest educational level of our respondents is university (21.7%) but our respondents predominantly graduated from Senior High Schools (48.3%) (Table 1).

Table 1. Patient Characteristics of the Study

Characteristics	N	%
Age		
Adolescence	4	6.7
Early Adult	25	41.7
Late Adult	31	51.7
Education		
Primary School	9	15.0
Junior High School	9	15.0
Senior High School	29	48.3
University	13	21.7
Medication		
Duvinavir	12	20.0
TLD	21	35.0
TLE	26	45.0

The majority of respondents had good knowledge on ARV therapy and HIV (60%). However, some of these PLWHA had poor knowledge on their disease and therapy (23.3%) (Table 2).

Table 2. Descriptive Data for the Knowledge Level on ARV and HIV

Knowledge	n	%
Poor	14	23.3
Moderate	10	16.7
High	36	60.0

Based on the MMAS-8 score, nearly 50% of our respondents had high scores, indicating that they had high adherence to ARV therapy. Nevertheless, low adherence was still observed among the respondents (35%) (Table 3).

Table 3. Descriptive Data for MMAS-8

MMAS-8 Score	Adherence	%
Low (<6)	21	35.0
Moderate (6-7)	10	16.7
High (8)	29	48.3

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Subjects with poor knowledge had low adherence level to their therapy (92%), while subjects with good knowledge also had high adherence level to ARV therapy (69.4%). It could be infered that the better the knowledge the higher the adherence level was.

The Spearman test yielded a positive significant correlation between knowledge and adherence to ARV therapy with a moderate strength (r=0.572 ; p£0.001) Hence, the hypothesis stating that level of knowledge correlates with the patient's adherence to ARV therapy was proven.

Table 4. Spearman's Rho Analysis

| Knowledge | Adherence | | | | | | Total | | r | p |
| | Low | | Moderate | | High | | | | | |
	n	%	n	%	n	%	n	%		
Low	13	92.9%	0	0.0%	1	7.1%	14	100.0%	0.572	<0.001*
Moderate	1	10.0%	6	60.0%	3	30.0%	10	100.0%		
High	7	19.4%	4	11.1%	25	69.4%	36	100.0%		
Total	21	35.0%	10	16.7%	29	48.3%	60	100.0%		

DISCUSSION

More than 50% of the respondents in our study aged between 36 and 45 years old. This is in line with a study by Diyah Tepi Rahmawati (2022) which reported that this age group is the greatest contributor for HIV incidence every year. These late adults had a risk to get HIV 3.937 times greater than early adults did [7].

Our respondents were dominated by high school and university graduates. Previous study revealed that 62.7% of PLWHA graduated from senior high schools. Education can influence someone in taking action and choosing the appropriate attitude which affect perception, support the behaviour in seeking treatment, enhance quality of life, increase the courage to get information about HIV, and improve the treatment effort [8].

Regarding knowledge level, our study found that 60% of our subjects had good knowledge on HIV and ARV therapy. Septiansyah et al study (2020) also revealed similar finding that 64.41% of their subjects owned high grade of knowledge. Another study by Chryest Debby (2016) showed that majority of PLWHA (70.2%) had good knowledge. Good knowledge on HIV and ARV therapy results from education and counselling given to PLWHA to help them to understand their disease, therapy, the potential of side effect of ARV therapy, and the length of treatment [8].

Jusriana (2020) from Yayasan Peduli Makassar reported that 62.8% PLWHA had high compliance with their ARV therapy. According to a study by Sugiharti et al (2018), factors which can support HIV patient's adherence to ARV therapy are family, friends, community,and internal factors in PLWHA Thirty five percent of our study subjects were categorized as poor adherence. This is likely due to low knowledge level, fear of society stigma, depression, disbelieve in the therapy, and worry about side effects [9].

Several studies suggested that knowledge significantly correlates with therapy adherence. Ashraf (2021) found a significant association between knowledge and ARV therapy adherence. A study in 2023 revealed that PLWHA with good knowledge had 4.9 times greater chance to comply with ARV therapy as compared to those with poor knowledge on HIV and ARV therapy [10]. The knowledge of PLWHA on ARV indirectly influences adherence to their

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therapy as the attitude, based on knowledge, will be more permanent than the attitude without knowledge. One of the ways to improve knowledge is by giving counselling to PLWHA. Good knowledge will make it easier to have healthy behaviour. Knowledge-based behaviour can create long-lasting obedient behaviour toward ARV therapy [11].

CONCLUSION

This study demonstrates a moderate positive correlation between knowledge of HIV and ARV therapy and adherence to ARV treatment among people living with HIV/AIDS (PLWHA). The results indicate that individuals with higher levels of knowledge about HIV and its treatment are more likely to adhere to their ARV regimen. Given the critical importance of adherence to ARV therapy in managing HIV, improving patient education and awareness about HIV and ARV treatment could be an effective strategy to enhance adherence and ultimately improve health outcomes for PLWHA. Future interventions should focus on expanding educational programs and providing continuous counselling to ensure a better understanding and commitment to ARV therapy. Further studies with larger sample sizes and longitudinal designs are recommended to confirm these findings and explore other factors influencing adherence.

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