Analysis of Characteristics, Information Motivation Behavioral Skills in HIV Patients to Improve Antiretroviral Adherence: A Cross-Sectional Study

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ARTICLE INFO	ABSTRACT (10PT)
	Background: The number of people with HIV/AIDS in Indonesia, particularly an east Jakarta still to be concerned. Clients in community who required antiretrovirals (ARVs) treatment has been identified in relation to client's characteristics and Information Motivational Behavioral Skills (IMB), so it might improve client's adherence ARV therapy. This study aims to analyze the adherence of taking ARV therapy within clients suffering HIV, who were taking ARV therapy at Kramat Jati District Community Health Center. **Method**: The study design was quantitative research with a cross-sectional approach. The population come from Kramat Jati district, and there are 74 respondents have been involved by purposive sampling technic. These respondents were undergoing ARV therapy at Kramat Jati Community Health Center from August 3 to November 24, 2022. The data was processed using the chi square test. **Results**: There were relationships between age characteristics (0.030), sex (0.013), occupation (0.035), marital status of respondents (0.009). There was a relationship between Information (0.004), Motivational (0.024), and Behavioral Skills (0.042) with adherence to taking ARV drugs in HIV/AIDS patients at the Kramat Jati Health Center). No association of educational characteristics (0441) with adherence to taking ARV drugs. **Conclusion**: there was a relationship of characteristics (age, gender, occupation, employment status), and the relationship of Information, Motivational and Behavioral Skills with adherence to taking ARV drugs. Information motivation behavioral skills that were very effective for adherence to taking ARV drugs in people with HIV. However, educational level had no correlation with client's obedience in taking ARV therapy.

Introduction

Human Immunodeficiency Virus (HIV) and Acquired Immune Deficiency Syndrome (AIDS) have become global emergencies. Worldwide, the HIV-infected population in Southeast Asia is 3.8 million [1]. New HIV morbidity, mortality, and infection rates of HIV/AIDS continued to increase annually in China from 2004 to 2016 (0.235, 0.057 and 1.020 in 2004, respectively; 3.990, 1.034 and 6.442 in 2016) (all <.001 respectively) [2]. The number of HIV positive cases reported year by year is likely to increase. In 2018, 50,282 cases were reported. Conversely, compared to the average of the previous 8 years, the number of new cases of AIDS tends to decrease, in 2019 7,036 cases were reported [3]. For the highest AIDS cases for the last eleven years in 2013, there were 12,214 cases. The five provinces with the highest number of HIV cases are DKI Jakarta, second only to East Java (77,934) [1]. According to data or the United Nations program for HIV-AIDS (UNAIDS), states that every year there are 46000 new cases of infection in Indonesia. In the report of the Directorate General of P2P, Ministry of Health of the Republic of Indonesia, May 29, 2020, concerning the Development of HIV/AIDS and Sexually Transmitted Diseases (PIMS) in the first quarter of 2020, the number of HIV cases nationally was 388,724. According to data from the Directorate General of P2P, Ministry of Health, May 29, 2020, the highest number of HIV positive reported from 1987-March 2020 was in DKI Jakarta with a total of 67,137 cases. Based on data from HIV and AIDS case reports in East Jakarta in the first quarter (January-March) of 2020, there were 33,162 people taking HIV/AIDS tests and 397 positive cases were found. According to the Mayor of East Jakarta, Kramat Jati District is the highest HIV and AIDS positive area because of the high mobility of the community (4). The number of ARV-compliant PLHIV until October 2020 was 329 people. The number of PLHIV Viral Load suppressed from 2019 to October 2020 was 210, who received ARV drugs 45 people are undergoing treatment 59. The number of HIV positive people is 324 people. According to data dated October 23, 2021, there were 324 people. PLHIV patients who have received ARV for more than 1 year as many as 216 people and 207 people have successfully treated. The number of PLHIV per area of Cawang Village is 25 people, Cililitan Village 40 people, Batuampar Village 30 people, Kramat Jati Village 35 people, Dukuh Village 20 people, Central Village 38 people, Balekambang Village 38 people, Outside the area 398 people.

Until now there has not been found a drug to cure HIV / AIDS. However, there are treatments that can control the growth of the amount of HIV in the body so as not to be exposed to opportunistic infections, this treatment is called antiretroviral therapy (ARV) [1]. Antiretrovirals have been shown to be successful in lowering viral load and increasing CD4 counts (Cluster of Differentiation) [4]. Treatment with ART does not cure HIV infection, but it can control the progression of the disease [5]. A high degree of adherence to treatment regimens is essential to encourage viral suppression and prevent drug resistance [6]. Strict adherence to antiretroviral drugs can reduce viral progression to immune deficiency syndrome (AIDS) status and improve the overall quality of life of patients [7]. Based on data from the Directorate General of Disease Prevention and Control of the Ministry of Health until 2020, the level of patient compliance in the treatment of HIV/AIDS in Indonesia is still very low, which is still very low, which is still below the national target with a compliance rate of 95%. Non-adherence to treatment reduces the immunological benefits of ARVs that predispose clients to opportunistic infections, increasing the risk of drug resistance and HIV transmission [8]. The most important factor determining the success of ARV therapy is adherence to taking ARV drugs to reduce the amount of HIV virus in the human body [9]..Maintaining optimal adherence and suppression of the virus in people living with HIV is essential to ensure the preventive and therapeutic benefits of antiretroviral therapy (ART) [10]. According to UNAIDS data or the United Nations program for HIV-AIDS, states that every year there are 46000 new cases of infection in Indonesia. In the report of the Directorate General of P2P, Ministry of Health of the Republic of Indonesia, May 29, 2020, concerning the Development of HIV/AIDS and Sexually Transmitted Diseases (PIMS) in the first quarter of 2020, the number of HIV cases nationally was 388,724. According to data from the Directorate General of P2P, Ministry of Health, May 29, 2020, the highest number of HIV positive reported from 1987-March 2020 was in DKI Jakarta with a total of 67,137 cases. Based on data from HIV and AIDS case reports in East Jakarta in the first quarter (January-March) of 2020, there were 33,162 people taking HIV/AIDS tests and 397 positive cases were found. According to the

Mayor of East Jakarta, Kramat Jati District is the highest HIV and AIDS positive area because of the high mobility of the community [4].

Factors that may affect the non-adherence of HIV/AIDS patients in taking ARV drugs are patient characteristics, physical form and side effects of drugs, drug availability, negative views or stigma from the community, PLHIV does not feel the severity of their health condition, knowledge, motivation, improved health conditions after treatment, family support, the role of health workers and peer support groups (KDS), environment, commitment of PLHIV to undergo treatment, perception of PLHIV, access to services, and adherence counseling services in undergoing ARV therapy [11-15]. The provision of Information Motivational Behavioral Skills (IMB) aims to influence a person's preventive behavior against the disease to become more severe towards AIDS. Information Motivation Behavioral Skills (IMB) Model of ART Adherence information, motivation and ability to behave, increase positive behavior towards adherence to ARV consumption, increase motivation, knowledge and adherence in HIV sufferers who have poor life skills that cause non-adherence to treatment [12]. High adherence is necessary for the success of the therapy program. Information motivation behavioral skills are suggested to help in improving adherence to taking ARV drugs in patients suffering from HIV so that the patient's quality of life can improve [12]. The purpose of this study was to analyze the relationship between characteristics, information, motivation, behavioral skills in people with HIV to improve ARV compliance

Materials and Method

This study was a non-experimental type of quantitative research designed by Cross sectional. Subjects/objects used in the study that met the inclusion criteria of respondents who came to the HIV poly at the Kramat Jati Health Center. The method for obtaining data by interview uses questionnaires through gform. Purposive sampling method. Research Sample 74 respondents. Inclusion criteria for respondents registered in HIV poly, respondents had android. Exclusion criteria for respondents referred to other hospitals. Independent variables of information, motivation and behavioral skills. Dependent variable adherence to taking ARV drugs in HIV respondents. Adoption information research questionnaire. Information level indicators: Low = <3, Medium = 4-6, High = 7-9. Motivation indicators: Low = < 4, Medium = 5-7, High = 8-10. Behavioral skill level indicators: Low = <5, Medium = 6-9, High = 10-14. Researchers using The Life Windows Information Motivation Behavioral Skills ART Adherence Questionnaire (LW-IMB-AAQ) This questionnaire consisted of 33 questions, 9 questions about information including how to take drugs, accuracy of taking drugs, side effects of drugs, impact of taking drugs, 10 questions about motivation including the influence of HIV status and drugs on life, and 14 questions about behavioral skills including skills in taking medication and taking drugs. Questions regarding information, the score strongly agreed with 1, other responses were 0. Questions I3 and I5 strongly disagreed scores 1, other responses score 0. Then added up all the items for the correct total score. Questions about motivation, strongly disagreed score is 1, other responses were 0, M4 and M5 questions strongly agree score was 1, other responses were 0. Then added up all the items for the correct total score. Questions regarding behavioral skills, question B1 scores strongly agreed and not drinking alcohol or drugs was worth 1, other responses were worth 0. Questions B2-B14 scores very easily worth 1, other responses were worth 0. Then sum all the items to the correct total score [13]. How to get patient consent, consult first with the puskesmas then explain thoroughly about the research procedure and ask the patient to give written consent.

Measuring the level of compliance of mothers with HIV in taking ARVs using Questionnaire 16 using the Likert scale there were 13 questions. It is said to be obedient to take ARV medication if the score ≥ 33 and it is said to be non-compliant score <33. The data taken from August 3 to November 24, 2022 has received ethics from the Health Ethics Commission of the Faculty of Nursing and Midwifery, Binawan University in the form of ethical approval No: 041/PE/FKK-KEPK/VI/2022

Results and Discussion
Results

The most age characteristics of late adolescence are shown in Table 1. The highest age characteristics include a degree from high school 47.30%, employment 79.73%, a marital status—married or ever married—64.86%, low information 66.22%, high motivation 82.43%, low behavioral skills 50%, and compliance 85.13%.

Table 1. Frequency Distribution of Characteristics, Information Motivation Behavioral Skills in HIV Patients to Improve ARV Adherence

Characteristic	n	%
Age		
Late adolescence 17-25 years	30	40.55
Early Adults 26-35	28	37.84
Late Adults 36-45	10	13.51
Seniors 46-55	6	8.10
Gender		
Woman	39	52.70
Man	35	47.30
Education		
Graduated from elementary school / junior high school	28	37.84
Graduated from high school	35	47.30
Graduated from PT	11	14.86
Work		
Work	59	79.73
Non-Working / Housewife	15	20.27
Marital Status		
Married/ever married	48	64.86
Unmarried	26	35.14
Information		
Low	49	66.22
Keep	19	25.67
Tall	6	8.11
Motivation		
Low	4	5.41
Keep	9	12.16
Tall	61	82.43
Behavioral Skills	37	50
Low	8	10.81
Keep	29	39.18
Tall		
Compliance		
Obedient	63	85.13
Disobedient	11	14.87

Table 2 shows the characteristics of age (p-value 0.030), characteristics of sex (p-value 0.013), characteristics of education (p-value 0.441), characteristics of work (p-value 0.035), characteristics

of marital status (p-value 0.009), information (p-value 0.048), motivation (p value 0.024), and behavioral skills (p value 0.042) with adherence to taking Arv drugs.

Table 2. Analysis of Characteristics, Information Motivation Behavioral Skills in HIV Sufferers to Improve ARV Adherence

Characteristic	Adherence to Taking ARV Drugs				
	Obedient		Not		
	n	%	N	%	
Age					
Late adolescence 17-25 years	25	33.79	5	6.76	0.030
Early Adults 26-35	27	36.49	1	1.35	
Late adults 36-45	8	10.81	2	2.70	
Seniors 46-55	3	4.05	3	4.05	
Gender					
Woman	37	50	2	2.70	0.013
Man	26	35.14	9	12.16	
Education					
Graduated from elementary school / junior high school	24	32.43	4	5.40	0.441
Graduated from high school	29	39.18	6	8.10	
Graduated from PT	10	13.51	1	1.35	
Work					
Work	50	67.57	9	12.16	0.035
Not working/Housewife	13	17.57	2	2.70	
Marital Status					
Married/ ever married	41	55.40	7	9.46	0.009
Unmarried	22	29.73	4	5.41	
Information					
Low	44	59.46	5	6.76	0.048
Keep	13	17.57	6	8.10	
Tall	6	8.11	0	0	
Motivation					
Low	4	5.41	0	0	0.024
Nice	5	6.75	4	5.41	
Tall	54	72.97	7	9.46	
Behavioral Skills					
Low	35	47.30	2	2.70	0.042
Keep	7	9.46	1	1.35	
Tall	21	28.35	8	10.81	

Discussion

The relationship between age characteristics and adherence to taking ARVs

Based on the results of statistical tests in this study, it was found that there was a relationship between age characteristics and adherence to taking ARV with a value of (p) = 0.030 (>0.05) with the most Early Adults 26-35. According to his age, the majority of HIV sufferers in Indonesia are from the age group of 25-49 years, which is as much as 69.9% of the total cases. Then the second most from the age group of 20-24 years as much as 16.1%. Followed by those over 50 years old as much as 7.7% and 15-19 years old 3.4% [14].

The results of this study are not in line with Kismiyati 2021, there is no relationship between age characteristics and adherence to taking ARVs with a value of (p) = 0.411 [15]. This study is also in accordance with research at the Cendana Poly, Ngudi Waluyo Wlingi Hospital, there is a relationship between age and compliance [16].

Relationship of Educational Characteristics with Adherence to Taking ARVs

Based on the results of statistical tests conducted, there was no relationship between educational characteristics and adherence to taking ARV with a value of (p) = 0.441 (<0.05). The results of this study are in line with previous research which stated that the results of the chi-square statistical test with a confidence level of 95% obtained p value = 0.859 (> 0.05) means that there is no significant relationship between respondents' education and adherence to taking ARV drugs in HIV patients at the HIV Integrated Service Unit of RSUPN Dr. Cipto Mangunkusumo [17]. In line with the research of Dr.H.Moch.Ansari Saleh Hospital Banjarmasin, there is no relationship between educational factors and compliance [18].

The results of this study are in line with research that states there is no significant relationship of adherence to education with a p value of 0.545 because education level does not determine adherence to taking ARV drugs. This study is in accordance with the 2019 sari there is a meaningful relationship between education and adherence of HIV-AIDS patients in antiretroviral therapy (ARV) (p = 0.000) [16].

Relationship of Sex Characteristics with Adherence to Taking ARVs

Based on the results of statistical tests conducted, there is a relationship between sex characteristics and adherence to taking ARV with a value of (p) = 0.013 (<0.05). According to data from the Ministry of Health, as many as 35% of housewives are HIV positive. This percentage is higher compared to other groups, such as partners of sex workers and MSM (men who have sex with men) [19].

The possibility of increase is because women are more compliant in treatment. Other studies illustrate that women are more resistant because they have the motivation to follow therapy because their children still need it and are related to fulfilling life needs such as having to work. Research in Nampula, Mozambique, found that the median age of 208 adolescents with HIV was 18 years (interquartile range (IQR): 16–19), with 143 (69%) of them being women [20].

Occupational relationship with ARV therapy adherence

The results found that there was a relationship between work and ARV Compliance (0.035). In accordance with Suryana's research out of the 202 people living with HIV/AIDS undergoing ART, 170 (84.16%) had high adherence (≥95%), while 32 (15.84%) had low adherence (<95%). Employment status/occupation (p = 0.011), type of ARV (due to adverse effect of ART) (p = 0.002), and family support (p < 0.001) were found to be independently associated with high adherence to ART [21]. Work affects the economic function of the family serves to meet the needs of the family economically, and a place to develop the ability of individuals to increase income to meet family needs. Someone who has an established job with a good income is more obedient to ARV treatment because the patient is able to meet the needs of treatment.

In line with Haryadi's 2020 research, there is a relationship between the type of work and education level with adherence to taking ARV drugs at the VCT clinic at RSUD Batang [22].There is insufficient evidence to establish a clear correlation between socio-economic factors and HIV patients' adherence to antiretroviral therapy (ART). In some of the reviewed studies, there appears to be a positive trend between socioeconomic factors and ART adherence [23].

Relationship of Marital Status with ARV Therapy Adherence

This study is not in accordance Likewise with Nasution in Dina 2019 Married patients will have emotional closeness to each other, they will often exchange information or give motivation to each other and find solutions in solving problems in life such as health problems including reminding in taking medicine [24]. HIV infection was more common in women than in men. In addition to other socioeconomic and demographic factors, this study found that marital status had a significant impact on HIV infection. Policy makers in rural South Africa will benefit from this finding as they formulate empowerment programs and policies that address HIV and other health-related issues [25].

Information Relationship with ARV Therapy Adherence

This study is in accordance with Siti 2021 Information factors affect adherence to taking ARV drugs in PLHIV with p value = 0.001< 0.05 (26). Information Motivation and Behavioral Skills (IMB) is a theoretical model popularized by Fisher in 1992 in Aris 2023 [12]. This model is a design model used to identify the level of adherence to information, motivation and behavioral skills in the determinants of ARV consumption. Information, motivation and behavioral skills have a strong influence on reducing unwanted risks so that preventive behaviors can be applied.

The provision of behavioral information motivation (IMB) interventions in HIV sufferers is very effective in adherence to taking ARV drugs. The benefits of information motivation behavioral skills are increasing positive behavior towards adherence to ARV consumption, increasing motivation, knowledge and adherence in HIV sufferers who have poor life skills that cause non-adherence to treatment. Information Motivation and Behavioral skill interventions are given for the first time through counseling by exploring factors that affect compliance and inhibit adherence to ARV consumption with a duration of 10-15 minutes. High adherence is required for the success of the therapy program Information motivation behavioral Skills suggested can help in improving adherence to taking ARV medication in patients suffering from HIV so that the patient's quality of life can improve [12]. Family support, level of knowledge, peer support, treatment side effects, motivation, behavioral skills, psychology of PLHIV patients, health care facilities, therapy guidelines, characteristics of comorbidities, perception, gender, and boredom are factors related to the condition of PLHIV patients. compliance with ARVs [27].

Relationship of Motivation with Adherence to ARV therapy

This study is in accordance with research at the PDP Poly of Undata Hospital, Central Sulawesi province, there is a relationship between motivation and adherence to taking ARV drugs in HIV-AIDS patients [28]. The results of this study are in line with IMB theory which says that individual motivation is based on attitudes towards preventive behaviors, subjective norms, perceptions regarding susceptibility to disease, advantages and barriers of preventive behavior, costs arising from risky behaviors. Motivation includes attitudes about the impact of adherence and noncompliance behaviors and evaluation of the results of those behaviors as well as perceptions of support from others for adherence to taking medication and motivation to meet the expectations of others [28]. In accordance with the research of HIV/AIDS patients at the Lubuk Baja Health Center, there is a relationship between motivation and adherence to drinking ARV medicine [29].

The Relationship of Behavioral Skills with ARV Compliance

Behavioral skills are an individual's ability to take preventive actions, ensuring that a person has the skills, tools and strategies for behavior that are based on self-efficacy and the feeling that he or she can influence the situation (perceived behavioral control) to perform the behavior [30]. Research at the Sorong City Health Center has a relationship between self-efficacy and adherence to taking antiretroviral drugs (ARV) in HIV-AIDS patients (p = 0.004). These behavioral skills include skills to acquire and self-administer ARV therapy, to minimize side effects, to renew adherence in ARV therapy as needed as self-reinforcement to comply over time. Good knowledge and motivation can encourage effective preventive actions or behavior change according to Amico et al, 2005 in [30].

Self-efficacy that has been formed can support changes in individual behavior, so it is expected that patients can have high adherence to treatment. The weakness of this study is that there was a possibility of bias in sample selection if only HIV patients who were already compliant were willing to participate in the study. The advantages of this study can be used to design more appropriate and effective interventions to improve patient adherence to antiretroviral therapy. This could include more intensive counselling, education, or support approaches.

Conclusion

There is a relationship of age, gender, occupation, marital status. There is no relationship of education to ARV compliance. There is a relationship of information, motivation and behavioral skills with ARV compliance. Adherence to therapy is essential for chronic disease management. Good

adherence is important in the success of ARV therapy. Therefore, it is important to pay close attention to the level of adherence of a patient in undergoing treatment because of evidence that non-compliance will usually be associated with adverse outcomes and higher treatment costs. It is hoped that HIV screening will be carried out both in puskesmas, in public places such as supermarkets to all migrants considering the nature of the high mobility of the community.

Declaration

Conflicts of Interest: This study has no conflict of interest.

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