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The relationship between HIV stigma and adherence to antiretroviral (ARV) drug therapy among women with HIV in Lampung, Indonesia☆

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Abstract
Objective: The aim of our study was to examine the relationship between HIV stigma and adherence to antiretroviral (ARV) therapy among women with HIV.
Method: 120 women with HIV involved in this cross-sectional study. The participant were out-patients at the Voluntary Counseling and Testing (VCT) Abdul Moeloek Hospital in Lampung, Indonesia.
Results: We examined data from 120 patients. Through chi-squared tests, a statistically significant correlation between HIV stigma and adherence to ARV therapy was revealed (*p*-value = 0.045; OR 2.274) women with low levels of stigma toward HIV demonstrated adherence to ARV treatment that was 2.27 times greater than that of women with high levels of stigma toward HIV.
Conclusions: One way to increase adherence to ARV therapy in women with HIV is by minimizing its stigma. This can be done by increasing their self-confidence and not differentiating between people living with HIV and others in the provision of health services.
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Introduction

The number of people worldwide with HIV/AIDS reached 36.7 million in 2017, with 48% of them being women.[1] Women are at risk of contracting HIV infection not only as commercial sex workers but also from their regular partners or husbands.[2] Such women do not exhibit risky behaviors, but their husbands are at risk.[3] Women are also at high risk

for sexual violence, such as rape and forced anal sex—both of which often lead to bleeding.[4–6]

HIV and AIDS are the most impactful emerging and deadly health conditions for women.[7] Women can transmit HIV to their fetuses during pregnancy, and girls attending school will be expelled for it.[7] Therefore, HIV must be handled seriously to decrease its risk of spreading.[5]

Adherence to ARV therapy is considered the most effective way of handling HIV to prevent opportunistic infections and complications for People Living With HIV (PLWHIV). ARV therapy programs are conducted long-term; therefore, they require patients' commitment to taking medication regularly throughout their lives.[8,9] Non-adherence to ARV treatment will lead to decreased numbers of CD4, increased viral loads, heightened appearances of opportunistic infections, and changes in the ARV therapy.[8] In addition, taking ARV drugs irregularly will cause high resistance to ARV drugs and opportunistic infections while decreasing the patient's quality of life due to frequent illness.[10,11]

HIV stigma is one factor that influences patient adherence to ARV therapy.[7,12] Women who feel stigmatized will have a diminished desire to take an HIV test, will find it difficult to disclose their HIV status, and will have limited access to and use of health services—all of which will reduce their subsequent adherence to antiretroviral drugs.[13] Patients who experience HIV stigma tend not to be well-informed about HIV treatments, including therapy programs.[14,15] Patient stigma appears to be very high prior to ARV therapy and lower after patients experience its benefits.[12]

Based on the results of related research, a gap appears to exist between theory and reality. This demonstrates the need for other studies to examine the relationship between HIV stigma and adherence to ARV therapy in patients with HIV. Motivated by the few specific studies on HIV in Lampung, the current researchers resolved to conduct research on the relationship between HIV stigma and adherence to ARV therapy among women with HIV in the General Hospital (RSUD) under Dr. H. Abdul Moeloek in Lampung, Indonesia.

Method

This cross-sectional study involved 120 women with HIV following self-administered ARV regimens. It was conducted in the RSUD in Lampung, Indonesia, under Dr. H. Abdul Moeloek. The eligibility criteria called for women with HIV who had undertaken ARV therapy for at least 6 months.

The variables analyzed consisted of adherence to ARV therapy and HIV stigma levels. Adherence to ARV therapy was measured as a dependent variable using 4 questions through the Morisky–Green–Levine Test.[16] Stigma was measured as an independent variable measured using 40 questions through the Berger Stigma HIV-Scale.[17] Data collection was carried out after receiving ethical approval from the Universitas Indonesia, and all respondents agreed to participate by signing the approval form explained earlier. Bivariate analysis was performed using a chi-squared statistical test.

Both measuring instruments were tested for validity and reliability. The Cronbach's alpha value for the Morisky–Green–Levine instrument was 0.6 with a validity

Table 1 Demographic characteristics of respondents ($n = 120$).

Variable	Frequency	Percentage
Age		
18–40 years old	98	81.7
41–60 years old	22	18.3
Level of education		
Junior high school	32	26.7
Middle high school	67	55.8
Senior high school	21	17.5
Employment		
Unemployed	95	79.2
Employed	25	208
Marital status		
Single	3	2.5
Married	80	66.7
Widowed	37	30.8
ARV therapy duration		
6–12 months	12	10
13–36 months	55	45.8
>36 months	53	44.2
ARV therapy type		
Atripla	52	43.3
Duviral + Efaviren	21	17.5
Duviral + Neviral	33	27.5
Others	14	11.7
Adherence		
No adherence	63	52.5
Adherence	57	47.5
Stigma		
Low	59	49.2
High	61	50.1

correlation coefficient in the range of 0.374–0.393. The Cronbach's alpha value for the Berger Stigma HIV-Scale was 0.944 with a validity correlation coefficient in the range of 0.82–0.92.

This study received ethical approval from the Faculty of Nursing Universitas Indonesia Ethics Committee (No. 169/UN2.F12.D/HKP.02.04/2018). All participants in this study signed informed consent forms at the beginning of the study.

Results

The results of the data analysis shown in Table 1 that the majority of respondents were aged 18–40 years (81.7%), had secondary education (55.83%), were unemployed (81.7%), or were housewives (66.7%). Duration of taking ARV therapy was 13–36 months (45.8%) with the Atripla ARV type (43.3%). Furthermore, the patient non-adherence rate found by this study was 53.7% (63). The stigma rate was found to be 50.8%.

In addition, Table 2 shows the relationship between HIV stigma and adherence to ARV therapy in women with HIV revealed that 37 women (62.7%) in the study with low levels of stigma adhered to their ARV therapies. In contrast, 20

Table 2 The relationship between HIV stigma and adherence to ARV therapy ($n = 120$).

Stigma	ARV adherence				Total		OR(95%/CI)	p Value
	Adherent		Non-adherent					
	N	%	N	%	n	%		
Low	37	62.7	22	37.3	59	100	2.247	0.045*
High	20	32.8	41	67.2	61	100	(1.081–4.669)	
Total	57	47.5	63	52.5	120	100		

* Level of significance: < 0.05.

women (32.8%) with high levels of stigma adhered to their ARV therapies. The statistical tests calculated $p = 0.045$. It can be concluded that there is a difference in the degree of ARV therapy adherence between women with low and high levels of HIV stigma and that a significant relationship exists between this stigma and adherence to ARV therapy. An OR of 2.247 was obtained from further analysis, indicating that women with low levels of HIV stigma demonstrate adherence to ARV therapy that is 2.247 times greater than that of women with high levels of stigma toward HIV.

Discussion

This study found that the majority of respondents were aged 18–40, which is within the reproductive age range. At reproductive ages, sexually active women who do not practice safe sexual behaviors are at high risk for contracting HIV.[5] Women with higher levels of education are more informed about HIV, including on the ways they can handle their own health problems and those of their families. Thus, education is the most important factor in breaking the chain of HIV transmission from mother to child.[18]

There was a large number of widowed respondents within this study (30.8%), but their widowed statuses were not reflected because of divorce or the death of their husbands. One respondent revealed that she had been diagnosed with HIV a year after divorcing her husband. She believed that the virus was obtained from her ex-husband because she had never exhibited sexually risky behavior in her life. Another widow status resulted from their husbands dying from other diseases or opportunistic infections and complications due to HIV. Thus, the data show that many women become infected with HIV from their husbands and sexual partners.[2,19,20]

The present study shows that higher stigma levels were linked to ARV therapy non-adherence. Some argue that such stigma arises from the assumption that HIV and AIDS have no cure. Additionally, some believe that they are transferred through deviant acts, such as casual sex and drug use.[21] The stigma analysis in this study reveals that 50.8% of respondents with HIV in Lampung experienced high levels of HIV stigma (Table 2), which can cause women with HIV to judge themselves. They assume that they are wrong. As a result, they do not want to reveal their HIV status to others, they feel ashamed, and they stay away from their environment.[21,22] This can happen because of reality or due to excessive self-criticism.

This study found that there are more women with HIV who do not adhere to their ARV therapy than women who do. This finding aligns with that of a 2016 study by Columbia.[23] Non-adherence to ARV therapy can be caused by several factors, including therapy-induced side effects, excessive medication, or saturation. Women with HIV and AIDS must deal with these illnesses throughout their lives, so they must consistently follow ARV therapy to maintain a good quality of life.[11] A lack of familial support, critical peers, and socioeconomic conditions can also make women with HIV not to adhere to their ARV therapy.[24]

A significant relationship ($p = 0.045$) was found between HIV stigma and adherence to ARV therapy in women with HIV. This finding is similar to that of a study conducted in Jinja, Uganda, which revealed that HIV stigma affects ODHA in their adherence to ARV therapy.[12] ODHA with high levels of stigma will demonstrate poor adherence to ARV therapy. Their negative feelings and beliefs on HIV are influenced by the role of the transmission method in developing societal stigma toward the virus.[21] These negative feelings cause negative reactions, including irregular adherence to ARV therapy.[12] A study conducted by Katz, Ryu, and Onuegbu showed that ODHA often chooses not to take ARV drugs if they are outside their environment in order to prevent their HIV status from being revealed.[25]

Many women with HIV tear the labels off of their medications or move the drugs to other containers to conceal them. Researchers observed these actions while gathering data at the Voluntary Counseling and Testing (VCT) Abdole Moeloek Hospital in Lampung. Patients did this in the waiting room before returning home so that the nature of the drugs would be unknown to others. Their fear of revealing their HIV status is often caused by concerns about losing friends or being shunned by the people around them. Accordingly, this study found that women with HIV who were not adherent to ARV therapy tended to have higher Berger Stigma HIV-Scale scores. Self-stigma also causes psychological disorders that affect adherence to ARV therapy.[26]

The adherence to ARV therapy in women with HIV is very important in preventing opportunistic infections and complications. In addition, this therapy helps reduce the risk of pregnant women transmitting HIV to their fetuses. Adherence to ARV therapy can be increased by reducing HIV stigma, increasing patient self-confidence, and not differentiating them from others in the provision of health services.

Conflict of interests

The authors declare no conflict of interest.

Acknowledgements

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