

Adherence to antiretroviral therapy by people living with HIV/AIDS in a municipality of São Paulo



Adesão à terapêutica antirretroviral de pessoas vivendo com HIV/aids em um município do interior paulista

Adhesión a la terapia antirretroviral de personas viviendo con VIH/SIDA en un municipio del interior

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ABSTRACT

Objective: To assess adherence to antiretroviral drugs by people living with HIV/AIDS and identify its association with sociodemographic and clinical variables.

Methods: Cross-sectional analytical study using a sociodemographic instrument and CEAT-HIV, with data collected in the period from 2014-2015.

Results: A 75.0% was identified as having a good/proper adherence. It was found that individuals between ages 40 and 59 ($p = 0.029$) and with more than eight years of formal education ($p = 0.043$) had a higher level of compliance, as well as those diagnosed with HIV/AIDS for more than 10 years ($p = 0.002$), CD4 count >350 cells/mm³ ($p < 0.001$) and an undetectable viral load ($p = 0.025$).

Conclusion: In this study, a good adherence between the subjects was identified and it was observed that individuals of older age, higher level of education, delayed diagnosis, high CD4 cell counts and undetectable viral load were associated with higher treatment adherence.

Keywords: Medication adherence. Antiretrovirals. HIV. Nursing. Nursing care.

RESUMO

Objetivo: Avaliar a adesão aos antirretrovirais de pessoas vivendo com o HIV/AIDS e identificar sua associação com variáveis sociodemográficas e clínicas.

Métodos: Estudo analítico transversal que utilizou instrumento sociodemográfico e o CEAT-HIV, com dados coletados no período de 2014 a 2015.

Resultados: Identificou-se 75,0% com grau de adesão bom/adequado. Verificou-se que os indivíduos com idade entre 40 e 59 anos ($p = 0,029$) e com mais de oito anos de estudo ($p = 0,043$) obtiveram maior grau de adesão, assim como aqueles com diagnóstico de HIV/AIDS há mais de 10 anos ($p = 0,002$), contagem de TCD4 >350 células/mm³ ($p < 0,001$) e carga viral indetectável ($p = 0,025$).

Conclusão: Nesse estudo, identificou-se uma boa adesão entre os sujeitos e observou-se que indivíduos de maior faixa etária, maior grau de escolaridade, maior tempo de diagnóstico, elevada contagem de células TCD4 e carga viral indetectável estiveram associados a uma maior adesão ao tratamento.

Palavras-chave: Adesão à medicação. Antirretrovirais. HIV. Enfermagem. Cuidados de enfermagem.

RESUMEN

Objetivo: Evaluar la adherencia a los medicamentos antirretrovirales para las personas que viven con el VIH/SIDA e identificar su asociación con variables sociodemográficas y clínicas.

Métodos: Estudio transversal analítico utilizando instrumento sociodemográfico y CEAT-VIH, con los datos recogidos desde 2014 hasta 2015.

Resultados: Se identificó un 75,0% con el grado de buena adherencia/adeuada. Se encontró que los individuos con edades comprendidas entre los 40 y los 59 años ($p = 0,029$) y más de ocho años de estudio ($p = 0,043$) tuvieron mayor nivel de cumplimiento, así como las personas diagnosticadas con VIH/SIDA durante más de 10 años ($p = 0,002$), recuento de CD4 >350 células/mm³ ($p < 0,001$) y la carga viral indetectable ($p = 0,025$).

Conclusión: En este estudio, y se observó una buena adherencia entre el sujeto que las personas de mayor edad, mayor nivel de educación, el retraso en el diagnóstico, los recuentos de células CD4 altos y carga viral indetectable se asociaron con una mayor adhesión a tratamiento.

Palabras clave: Cumplimiento de la medicación. Antirretrovirales. VIH. Enfermería. Atención de enfermería.

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■ INTRODUCTION

The scientific and technological advances in health care have enabled the implementation of new therapeutic tools in the treatment of chronic diseases. As these various therapeutic modalities increase longevity, impacting the disease and treatment, they generate changes that can influence individuals' quality of life⁽¹⁾.

The availability of the highly active Antiretroviral Therapy's (HAART) potent combination has resulted in great benefits to people living with HIV/AIDS, such as reducing the incidence of opportunistic diseases, reducing the need and complexity of hospital admissions, stabilization of the epidemic and increased life expectancy; observed through the significant reduction in morbidity and mortality associated with HIV and improvement in the quality of life reflected by the improvement in the physical and emotional conditions of individuals⁽²⁾.

For some medical conditions, such as HIV infections, adherence to drug therapy is of paramount importance, to completely suppress viral replication. However, there is some difficulty in achieving good adhesion levels, the complexity involved in treatments, the long duration and the various side effects⁽³⁾.

In 2014, the Joint United Nations Program on HIV/AIDS (UNAIDS) estimated that 36.9 million people were living with HIV⁽⁴⁾. Since the introduction of universal free access to antiretroviral drugs in Brazil, in 1996, the number of individuals living with AIDS using these drugs increased from 36,000 in 1997 to 170,000 in 2005⁽⁵⁾. And currently, about 15 million people worldwide are undergoing HAART⁽⁴⁾.

Despite these milestones, the number of infections is still considered high. UNAIDS believes that controlling the disease is impossible if treatment cannot be offered to all in need. Therefore, a triple goal, "90-90-90", was established, which aims for 90% all people with HIV to be aware they have the virus by 2020; that of these, 90% receive antiretroviral therapy without interruption; and finally, that 90% of those in HAART present viral suppression⁽⁶⁾.

However, the need to expand access to antiretroviral therapy and control the undesirable effects thereof, and the need to recognize and manage emerging comorbidities, are but existing reasons in addition to the low educational level, the deficit of family and social support, consumption of alcohol and illicit drugs, the side effects of the use of antiretroviral therapy, among other factors, that result in poor adhesion to HAART⁽⁷⁾.

The critical period for future adherence are the first six months in which the individual is in the process of

experiencing in treatment. This requires more commitment and returns to the health service, so it is important that the person living with HIV/AIDS (PLWHA) finds a support network in religiousness/spirituality, family and health services especially during this period; since side effects may affect the individual's ability to perform their daily activities⁽⁸⁾.

Non-adherence or poor adherence to treatment and misuse of HAART are considered a strong threat to the effectiveness of the treatment of PLWHA, as well as being directly related to treatment failure facilitating the proliferation of HIV strains that are resistant to existing drugs, implying the need to use a combination of other drugs, which may further impair adherence⁽⁴⁾.

There are factors that influence adherence and collaborate for the systematization of nursing care with effective intervention strategies in the adherence⁽⁸⁾. The knowledge produced based on the HAART adherence study makes it possible to map out strategies focused on quality of life and improvements in adherence directly targeted to PLWHA, contributing to nursing practice and health monitoring⁽¹⁾.

The evaluation process of adherence to antiretroviral therapy is very complex and there is no gold standard to perform this assessment. Methods commonly include pill counts, electronic monitoring, levels of therapeutic drugs, pharmacy records and self-reports. For each available method, there are advantages and disadvantages, there is no fully satisfactory method⁽⁹⁾.

Among the determining factors for the success of antiretroviral therapy are factors such as early diagnosis, access to and the quality of health services, the socio-economic situation of the individual and the degree of organization in services⁽⁴⁾. Knowledge of individual and sociodemographic factors may help detect patients at risk for non-adherence, providing aid to the health team which will, in turn, provide clarification to these individuals and, thus, enable an increase in adherence levels⁽¹⁰⁾.

As a member of the interdisciplinary health team, the nurse develops a key role in comprehensive care to people living with HIV/AIDS, and should be able to assist PLWHA who need HAART and find solutions to any adversity that may arise in their professional practice⁽⁷⁾.

Moreover, evaluating the adherence allows the identification of aspects that can serve as foundation for strategies in nursing care for this population⁽⁷⁾.

Thus, the study aimed to assess adherence to antiretroviral drugs by people living with HIV/AIDS and identify its association with sociodemographic and clinical variables.

■ METHODS

This is an analytical cross-sectional study carried out in two Specialized Care Services (SAE) dedicated to people living with HIV/AIDS in Ribeirão Preto-SP.

The sample was consecutive and non-probabilistic. The study included individuals over 18 years of age, who were aware of their HIV positive status, that had been using antiretroviral therapy for at least 6 months, of both sexes, and who were in clinical and outpatient treatment at SAE and who attended the scheduled medical follow-ups during the study period.

The exclusion criteria included individuals in confined situations such as prison inmates, people who were institutionalized or living in group homes.

Data were collected from March 2014 to January 2015 through individual interviews, in rooms made available in the ambulatory itself, before or after the medical or nursing consultation, by the researchers themselves and duly trained undergraduate students involved in the project.

A sociodemographic and clinical characterization instrument built specifically for the study was used, which was evaluated by the research group itself based on previous studies. Adherence evaluation was performed using the Cuestionario para La Evaluación de La Adhesión al Tratamiento Antirretroviral (CEAT-VIH) in the Portuguese version.

This instrument has been validated in several countries, with different languages and cultures, in adults, young and elderly individuals, and has been a useful tool, valid and reliable in measuring adherence to HIV treatment between samples of different ages, sex, socioeconomic and educational levels in a wide variety of population studies⁽³⁾.

The CEAT-HIV is a Likert scale with 20 items which together assess the degree of adherence to antiretroviral treatment. The higher the score, the greater the degree of adherence to treatment⁽¹¹⁾. For analysis, we grouped the scores into two groups classified as adequate or good/strict adherence (raw score ≥ 75) and inadequate or low/insufficient (raw score ≤ 74).

In addition, a database was built using an *Excel for Windows* spreadsheet with double entry and the data were later exported to the *Statistical Package for Social Sciences* software (SPSS), version 17.0.

Descriptive statistics were used to establish sociodemographic and clinical characteristics of the population, while association tests were used to determine the association between sociodemographic, clinical and adherence

variables – Chi-square and Fisher. Inferential analyzes with $p < 0.05$ were considered statistically significant.

The study was authorized by the Municipal Secretariat of Health of Ribeirão Preto – SP and the Ethics Committee of the School of Nursing of Ribeirão Preto, University of São Paulo, under opinion number 441.104/2013.

Data confidentiality and anonymity was guaranteed to all the research participants. Data collection was carried out only after the subjects expressed their agreement by signing the Free and Informed Consent Form, following the principles recommended by the National Health Council, through Resolution 466/12.

■ RESULTS

According to sociodemographic variables in the study, of 80 subjects, 48 (60.0%) were male and the mean age was 45.5, ranging from 24 to 67 years, with education more than eight years (55.0%). Almost all interviewed participants acquired HIV through the category sexually exposure (87.5%), and 92.5% of those involved did not participate in support groups.

As for the monthly income of each patient, it was found that 67 (83.8%) received wages lower than or equal to three minimum wage. In addition, 34 (42.5%) had formal employment, per Table 1.

Regarding the clinical variables (Table 2), it was found that 40 (50.0%) reported having been diagnosed with HIV more than 10 years ago, 57 (71.3%) had a CD4 cell count greater than 350 cells/mm³ and 54 (67,5%) had an undetectable viral load.

In assessing adhesion using the CEAT-HIV, it was found that 60 (75.0%) of had a good/strict degree of adherence. The minimum score obtained was 56 and maximum 88, with a mean value of 78.2.

Table 3 shows the association between sociodemographic and clinical variables, and adherence to antiretroviral therapy, per the CEAT-HIV.

Among the sociodemographic variables, it was identified that individuals with ages greater than or equal to 60 years old ($p = 0.029$) and with more than eight years of education ($p = 0.043$) had higher levels of adherence.

Regarding the clinical variables, it was observed that a period of diagnosis of HIV/AIDS for over 10 years ($p = 0.002$), CD4 + count greater than 350 cells/mm³ ($p < 0.001$), undetectable viral load (≤ 40 copies/ml) ($p = 0.025$) and not presenting difficulties to attend appointments ($p = 0.047$) were significantly associated with higher levels of adherence.

Table 1 – Sociodemographic Categorization of people living with HIV/AIDS. Ribeirão Preto – SP, 2014-2015

Variables	Category	n	%
Sex	Male	48	60.0
	Female	32	40.0
Age (years)	18 39	25	31.3
	40 59	47	58.7
	≥ 60	08	10.0
Color	White	35	43.8
	Black	18	22.5
	Yellow	02	1.7
	Brown	25	31.3
Education (years of study)	≤ 08	36	45.0
	> 08	44	55.0
Marital Status	Single	36	45
	Married/Casado/Common-law marriage	28	35
	Divorced	08	10
	Widower	07	8.8
	Other	01	1.3
Income (minimum wage*)	≤ 03	67	83.8
	> 3.1	13	16.3
Occupation	Unemployed	13	16.3
	Employed	34	42.5
	Self-employed	04	5.0
	Homemaker	05	6.3
	Student	01	1.3
	Retired	17	21.3
	On leave	06	7.5
Sexual orientation	Heterosexual	60	75.0
	Homosexual	16	20.0
	Bisexual	04	5.0
Total		80	100

Source: Research data, 2015.

* Current minimum wage during the study period was R \$ 724.00.

■ DISCUSSION

In this study, the socio-demographic characteristics of individuals confirms the profile of the HIV/AIDS epidemic in Brazil with a predominance of males with low-income and exposure to HIV through sexual transmission ⁽¹²⁻¹³⁾. In addition, there was a higher prevalence of more than eight years of study, corroborating the findings of another investigation ⁽¹⁾.

The most prevalent age group was 40 to 59 years old, as has also been found in other studies that evaluated the population living with HIV/AIDS ⁽¹⁴⁻¹⁵⁾.

The variables related to the sample profile showed statistically significant association were age ($p = 0.029$) and education ($p = 0.043$), a result found in studies that assessed adherence to therapy in patients living with HIV, showing that increased age is associated with greater likelihood of following the recommended treatment ⁽¹⁶⁻¹⁷⁾.

Table 2 – Clinical categorization for people living with HIV/AIDS. Ribeirão Preto – SP, 2014-2015

Variables	Category	n	%
HIV Period of Diagnosis (years)	≤ 05	22	27.5
	05 H 10	18	22.5
	≥ 10	40	50.0
Viral load (copies/ml)	≤ 40	54	67.5
	> 40	26	32.5
CD4 + T cells (cells/mm ³)	≤ 350	23	28.8
	> 350	57	71.3
Total		80	100

Source: Research data, 2015.

A high level of education is generally associated with good adherence, whereas other studies have found a correlation between high levels of education and access to information^(4,15,18).

It is important to emphasize that income, housing conditions and education have been shown to interfere only in situations of extreme poverty, since such a condition may result in poor access to treatment⁽¹³⁾.

Regarding adherence to HAART, it was found that 60 (75%) study participants were classified with good/strict adherence and, considering the entire sample, 78.1% of women and 72.9% of men had a good/strict degree of adherence. Such results indicate that these individuals had higher rates of good/strict adherence when compared with another study that used the CEAT- HIV in Brazil, which had rates of 14% and 48.7%, respectively⁽¹⁾. This large difference can be explained by changes in lifestyle, access to quality treatment and early diagnosis, as the studies were conducted in different regions of Brazil.

By making use of antiretrovirals in the prescribed doses and frequencies, the patient ensures other huge benefits such as reducing the occurrence of opportunistic infections, decrease in hospitalizations, contributing to the reduction of mortality rates and the consequent increase in the time and quality of life^(4,13,19).

From this analysis, it is showed that the longer the time of diagnosis and higher CD4 cell counts, higher the adherence to treatment, as has been found in other studies^(18,20). The clinical variables significantly associated with adherence were CD4 cell count ($p < 0.001$), viral load ($p = 0.025$), diagnosis ($p = 0.002$) and difficulty to attend appointments ($p = 0.047$).

Some studies claim that factors such as the difficulty to adjust therapy to the patient's life routine, involving issues such as work, lack of social support, social isolation

and side effects due to use of medication, may be related to the difficulty of follow-up, missing scheduled appointments and even abandoning treatment^(4,14,17).

The Ministry of Health also states that the non-acceptance of seropositivity, the presence of mental disorders, unsatisfactory relationship with professional health services, negative beliefs and misinformation regarding the treatment, alcohol abuse and abuse of other drugs, lack of human resources, difficulty to find transportation, the stigma related to paternity/maternity of PLWHA, and social exclusion are factors that hinder adherence⁽⁴⁾.

Thus, it is necessary that health care service activities not only facilitate access to treatment, but to the service to offer different service alternatives. Thus, schedule flexibility, attention directed at each population group and multidisciplinary care are essential attributes of a service⁽⁴⁾.

The lack of consultation or the long time between them reveals a weakness in the monitoring of patients starting HAART and promotes non-compliance and the subsequent abandonment of therapy⁽¹⁷⁾.

Brazil is a world reference in treatment for people with HIV/AIDS because the country provided universal access to antiretroviral therapy and other health care required by these individuals, which represents a major investment of the country's health resources⁽⁵⁾.

In this context, it is essential to recognize that adhesion to treatment comprises more than taking medication, as it includes factors related to the empowerment of the individual as the person responsible for their own self-care, providing a better quality of life.

Adherence to antiretroviral therapy should be permanently evaluated by the health team. Although there is a standard for the evaluation of adherence to HAART, the instrument proved to be very useful and easy to apply with individuals. There is still the need for other studies that

Table 3 – Association between sociodemographic and clinical variables and adherence to antiretroviral therapy, according to the Cuestionario La Evaluación La Adhesión al Tratamiento Antiretroviral (CEAT-HIV), Ribeirão Preto – SP, 2014 and 2015

Variables	Adhesion						p	
	Low Insufficient		Good Strict		Total			
	n	%	n	%	n	%		
Sex	Female	07	21.9	25	78.1	32	100	0.598*
	Male	13	27.1	35	72.9	48	100	
Age group (years)	18 H 39	11	44.0	14	56.0	25	100	0.029*
	40 H 59	08	17.0	39	83.0	47	100	
	≥ 60	01	12.5	07	87.5	08	100	
Education (years)	≤ 08	05	13.9	31	86.1	36	100	0.043[†]
	> 08	15	34.1	29	65.9	44	100	
Color	White	09	25.7	26	74.3	35	100	0.087*
	Black	08	44.4	10	55.6	18	100	
	Yellow	00	00	02	100	02	100	
	Brown	03	12.0	22	88.0	25	100	
Income (minimum wages)	≤ 03 minimum wages	17	25.4	50	74.6	67	100	0.861*
	> 03 minimum wages	03	23.1	10	76.9	13	100	
Sexual orientation	Heterosexual	13	21.7	47	78.3	60	100	0.058*
	Homosexual	04	25.0	12	75.0	16	100	
	Bisexual	03	75.0	01	25.0	04	100	
CD4 + T cells (cells/mm ³)	≤ 350	12	52.2	11	47.8	23	100	<0.001*
	> 350	08	14.0	49	86.0	57	100	
Viral load (copies/ml)	≤ 40	09	16.7	45	83.3	54	100	0.025[†]
	> 40	11	42.3	15	57.7	26	100	
HIV Period of Diagnosis	< 05	11	50.0	11	50.0	22	100	0.002*
	05 H 10	05	27.8	13	72.2	18	100	
	≥10	04	10.0	36	90.0	40	100	
Treatments other than HAART	Yes	15	28.8	37	71.2	52	100	0.417 [†]
	No	05	17.9	23	82.1	28	100	
Difficulty to attend consultations	Yes	07	46.7	08	53.3	15	100	0.047[†]
	No	13	20.0	52	80.0	65	100	
Alcoholic beverage consumption	No	05	14.7	29	85.3	34	100	0.100*
	Occasionally	10	28.6	25	71.4	35	100	
	Often	05	45.5	06	54.5	11	100	

Source: Research data, 2015.

* Chi-square test † Fisher Test

point to new strategies/interventions that promote adherence to HAART.

Thus, this study contributes to education in health and nursing as the evaluation of adherence to HAART enables

health professionals, especially nurses, to recognize not only the results of drugs in viral load and CD4 T-cell count in the individual organism. For, as you can see, the history turned to lifestyle and socioeconomic profile of PLWHA al-

lows a perception of difficulties in adherence, as well as the factors that make it possible to confront these difficulties.

■ CONCLUSION

This study allowed the evaluation of adherence of people living with HIV/AIDS to antiretroviral treatment in two reference centers in Ribeirão Preto, in which a good adherence was found among the study population. This adherence was significantly associated with older age, higher amount of CD4 + T cells, longer diagnosis and longer duration of the study and viral load. Patients who did not have difficulty attending medical appointments were mostly more adherent to treatment.

A result considered important in promoting strategies to maintain and/or improve good adherence to the group, thus strengthening the multidisciplinary, comprehensive and multidimensional approach involving treatment.

Therefore, it is up to the health professional to promote dialogue between the team that integrates the network of care for PLWHA, in addition to drug treatment, to share the findings of these cases and develop strategies that enable the success of care.

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