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ORIGINAL ARTICLE

KNOWLEDGE AND FACTORS THAT INFLUENCE ADHERENCE TO ANTIRETROVIRAL THERAPY IN PEOPLE LIVING WITH HIV/AIDS

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ABSTRACT

Objective: To analyze knowledge about HIV/AIDS and the factors that influence adherence to antiretroviral therapy of people living with HIV/AIDS.

Method: Cross-sectional quantitative study with 36 hospitalized patients, distributed in the groups G1-adherence (25) and G2-non-adherence (11), in a hospital in the state of Paraíba. A structured instrument was used, and data were analyzed using Chi-Squared Automatic Interaction Detection tests, Multivariate Analysis of Variance Model, Box's M test, Wilks' Lambda, and F-test in One-Way ANOVA.

Results: The determinant Receiving psychological counseling has a very strong impact on the classification of an individual in any of the G1 and G2 groups.

Conclusion: Focus on patients' biopsychosocial aspects is essential, and this is a key factor in adherence to therapy. New scientific knowledge on adherence to antiretroviral therapy in the northeastern region of Brazil is the contribution of this study.

DESCRIPTORS: Nursing; HIV; Highly Active Antiretroviral Therapy; Medication Adherence; Knowledge.

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ARTIGO ORIGINAL / ARTÍCULO ORIGINAL

CONHECIMENTO E FATORES QUE INFLUENCIAM NA ADESÃO À TERAPIA ANTIRRETROVIRAL DE PESSOAS VIVENDO COM HIV/AIDS

RESUMO
Objetivo: analisar o conhecimento sobre o HIV/aids e os fatores que influenciam na adesão à terapia antirretroviral de pessoas vivendo com HIV/aids.
Método: estudo transversal, quantitativo, com 36 pacientes que se encontravam internados, distribuídos em G1-adesão (25) e G2-não adesão (11), em um hospital no estado da Paraíba. Utilizou-se um instrumento estruturado e os dados foram analisados mediante os testes Chi-Squared Automatic Interaction Detection, Modelo de Análise de Variância Multivariada, M de box, Lambda de Wilks e F da análise de variância univariada.
Resultados: o determinante ter acompanhamento psicológico possui influência muito forte na classificação de um indivíduo em algum dos grupos G1 e G2.
Conclusão: é imprescindível a atenção focada nos aspectos biopsicossociais dos pacientes, constituindo fator essencial na adesão à terapêutica. Este estudo traz como contribuições novos conhecimentos científicos acerca da adesão à terapia antirretroviral na região nordeste do Brasil.

DESCRITORES: Enfermagem; HIV; Terapia Antirretroviral de Alta Atividade; Adesão à Medicação; Conhecimento.

CONOCIMIENTO Y FACTORES QUE INFLUENCIAN LA ADHESIÓN A LA TERAPIA ANTIRRETROVIRAL DE PERSONAS CON HIV/SIDA

RESUMEN:
Objetivo: analizar el conocimiento acerca del HIV/sida y los factores que influencian la adhesión a la terapia antirretroviral de personas con HIV/sida.
Método: estudio transversal, cuantitativo, con 36 pacientes internados, agrupados en G1-adhesión (25) y G2-no adhesión (11), en un hospital del estado de Paraíba. Se utilizó un instrumento estructurado y se analizaron los datos por medio de pruebas Chi-Squared Automatic Interaction Detection, Modelo de Análisis de Variancia Multivariada, M de box, Lambda de Wilks y F del análisis de variancia univariada.
Resultados: el determinante acompañamiento psicológico tiene mucha influencia en la clasificación de un individuo de los grupos G1 y G2.
Conclusión: es imprescindible el enfoque en la atención a los aspectos biopsicosociales de los pacientes, constituyendo factor esencial en la adhesión a la terapéutica. Este estudio trae como contribuciones nuevos conocimientos científicos acerca de la adhesión a la terapia antirretroviral en la región nordeste de Brasil.

DESCRIPTORES: Enfermería; HIV; Terapia Antirretroviral de Alta Actividad; Adhesión a la Medicación; Conocimiento.

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INTRODUCTION

The Human Immunodeficiency Virus (HIV), which causes the Acquired Immunodeficiency Syndrome (AIDS), is a major global public health problem, due to its pandemic character and its severity[1]. It is estimated that 75% of the 36.9 million people living with HIV worldwide in 2017 knew their HIV status. Of these, 21.7 million people (79%) had access to antiretroviral therapy (ART) [2].

In Brazil, 982,129 thousand AIDS cases were diagnosed until June 2018, and the North and Northeast regions of the country showed a linear growth trend in the detection rate. In this scenario, 226 cases of HIV were notified in the state of Paraíba, in 2018[3].

The Brazilian program guarantees the availability of drugs for the treatment of all HIV-positive individuals[1,4]. The success of ART for HIV/AIDS depends on timely diagnosis, appropriate treatment and high patient adherence to therapeutic regimens [5]. However, ensuring optimal adherence to treatment in clinical practice remains a challenge, since non-adherence to ART may lead to the development of antiretroviral resistance, progression to AIDS and death[6].

Therefore, adherence to ART requires a complex integration of acceptance, knowledge, skills and factors related to the environment and general health care of people living with HIV/AIDS (PLWHA). The number of pills taken, the frequency of use, the number of side effects, social support and the relationship with the health team apparently influence adherence to ART[1]. Hence, there is no consensus in the literature on the ideal model to measure adherence to ART: each model has advantages and disadvantages [4,7].

The treatment of people living with HIV/AIDS is a complex and multifaceted phenomenon that encompasses multiple dimensions, including aspects related to the patient, treatment, illness, socioeconomic and health systems, which is not restricted to taking antiretrovirals and following professional prescriptions[8]. Thus, further investigation of this phenomenon is necessary, for the development of a care plan that takes into consideration the various factors involved in adherence to ART and guides the performance of the multidisciplinary team.

Thus, the present study aimed to analyze knowledge about HIV/AIDS and the factors that influence adherence to antiretroviral therapy by people living with HIV/AIDS.

METHOD

Cross-sectional quantitative study carried out in a referral health service for the management of patients with infectious diseases in the state of Paraíba.

The population consisted of 41 individuals admitted to the HIV/AIDS sector of the health service. Program R for Windows was used for sample calculation. A 95% confidence index and a 5% margin of error were established, and the total sample consisted of 36 individuals.

The eligibility criteria were as follows: patients aged 18 years or older and with verbal communication skills. Patients with records of mental disorders or neurological disorders resulting from the progression of the disease in their medical records were excluded. Hence, individuals were selected by convenience sampling during the hospitalization period to form the Group of adherence (G1) and non-adherence (G2) to ART. The patients who started treatment immediately after testing positive for HIV were included in G1 adherence group and those patients who, despite testing positive for HIV had not yet adhered to antiretroviral treatment or whose adherence was late, were included in G2 adherence

group. Subsequently, 25 individuals were identified in G1 and 11 in G2.

Data were collected from February to September 2017, in a separate room to ensure the privacy of the research participants.

Two instruments were used: a questionnaire composed of two parts, the first consisting of questions about sociodemographic variables (age, gender, marital status, education and religion) and the second part consisting of 12 yes or no questions (identified as Q1, Q2 ... Q12) related to the care provided by the health professional who reported the positive HIV result. Care is understood as the commitment to recognize the pain of the other[9]; the reaction of the families of patients who tested positive for HIV/AIDS; treatment-related aspects; biases; and psychological counseling.

The second instrument is the Knowledge Test on HIV/AIDS, which was validated in Brazil by Natividade and Camargo[10], composed of six dimensions. However, in the present study, only dimensions three (D3) and four (D4) were used. D3 consists of 32 items on knowledge about forms of contagion and prevention, physiological and behavioral characteristics of AIDS. The D4 dimension has 26 questions on the symptoms of HIV in humans. This instrument has the answer options "yes", "no" or "don't know". According to the method developed by the authors, incorrect answers received zero (0) point and correct answers received (1) point. Also, questions marked with the "don't know" option were considered incorrect and received zero (0) point [10].

The data collected from the questionnaire were tabulated in a Microsoft Excel spreadsheet, converted into a file and analyzed with the Statistical Package for the Social Sciences (SPSS) and in software package R. The Chi-Squared Automatic Interaction Detection (CHAID) method was used to build the decision tree model. The Multivariate Analysis of Variance (MANOVA) procedure where dependent variables are D3 and D4 was applied to evaluate the statistical differences between G1 and G2.

For comparisons between the same variables in groups G1 and G2, it was first necessary to verify whether the covariance matrices of the variables in these groups are the same as established by Box's M test [11]. Then, Wilks' Lambda statistic test was used. According to this test, a p-value <0.05 defines statistically significant differences between the means of the variables of the groups compared. Finally, ANOVA F- test was performed to detect the variables that significantly contribute to the differences between G1 and G2.

Data collection observed the ethical guidelines set in Resolution 466/2012 [12] and the study was approved by the Research Ethics Committee of Centro Universitário de João Pessoa-PB, under protocol no 3.172.784.

RESULTS

Of the 36 study participants, most males (19), i.e. 76 percent of the total number of participants, were in G1 (adherence) (n=25), in a ratio of three males to one female. Their average age was 45.7 years, ranging from 18 to 66 years. G2, which is the non-adherence group (n = 11) had approximately the same number of participants of each gender, with six (54.5%) men and five (45.5%) women, and the average age was 40.82, ranging from 27 to 55 years.

In both groups (G1 and G2), most participants in G1 were single and had completed primary education. As for the variable religion, in G1 most participants were Catholic: 21 (84%), while in G2, most were evangelicals: five (45.5%) (Table 1).

Table 1 - Sociodemographic characteristics of groups G1 (adherence) and G2 (non-adherence). João Pessoa, PB, Brazil, 2017

Variables	G1 (n = 25)		G2 (n = 11)	
	n	%	n	%
Age				
18-39	7	28	4	36.4
40-59	13	52	7	63.6
≥ 60	5	20		
Gender				
Female	6	24	5	45.5
Male	19	76	6	54.5
Marital status				
Single	18	72	7	63.3
Married	2	8	3	27.3
Divorced	3	12	1	9.1
Widowed	2	8	0	0
Education				
Illiterate	2	8	2	18.2
Primary	16	64	9	81.8
Secondary	5	20	0	0
Higher education	2	8	0	0
Religion				
None	1	4	2	18.2
Catholic	21	84	4	36.4
Evangelical	3	12	5	45.5

As for the determinants Q1 to Q12, the data in the second part of the questionnaire did not present significant statistical values, since a value of one (1) was found in their 95% confidence intervals. It should be noted that determinants Q7, Q9, Q10 and Q12 had the lowest risks that impact adherence to treatment, and Q9 had the lowest risk of all (Table 2).

Table 2 - Determinants that can influence adherence (G1) and non-adherence (G2) to ART. João Pessoa, PB, Brazil, 2017 (continues)

Determinants	G1 (n =25)		G2 (n = 11)		PR
	n	%	n	%	(CI 95%)
Q1 – The health professionals were considerate of me at the time of the diagnosis.					
Yes	24	96	10	90.9	1.41
No	1	9.1	1	9.1	(0.35 ; 5.74)

Q2 - I received the necessary information to start my treatment.					
Yes	25	100	10	90.9	1.43
No	0	0	1	9.1	(0.35 ; 5.80)
Q3 – My family showed compassion to me when they learned I tested positive for HIV/AIDS.					
Yes	21	84	6	54.5	1.75
No	4	16	5	45.5	(0.82 ; 3.73)
Q4 - I can solve my doubts regarding the treatment.					
Yes	23	92	8	80	1.48
No	2	8	2	20	(0.54 ; 4.04)
Q5 - I believe in my recovery.		]			
Yes	23	92	10	90.9	1,04
No	2	8	1	9,1	(0.46 ; 2.40)
Q6 - I believe in the effectiveness of the HIV/AIDS treatment.					
Yes	24	96	10	90.9	1.41
No	1	4	1	9.1	(0.35 ; 5.74)
Q7 – I suffer stigma for having HIV/AIDS.					
Yes	13	52	5	45.5	1.08
No	12	48	6	54.5	(0.70 ; 1.67)
Q8 – I was embarrassed when I was told I had HIV/AIDS.					
Yes	11	44	2	18.2	1.39
No	14	56	9	81.8	(0.93 ; 2.08)
Q9 – I am receiving psychological counseling.					
Yes	5	20	7	63.6	0.50
No	20	80	4	36.4	(0.25 ; 1.00)
Q10 - I had to move to another city to be treated for HIV/AIDS.					
Yes	13	52	5	45.5	1.08
No	12	48	6	54.5	(0.70 ; 1.67)
Q11 – I am afraid					
Yes	8	32	1	9.1	1.41
No	17	68	10	90.9	(0.98 ; 2.04)
Q12 - Have you ever stopped treatment?					
Yes	14	66.7	7	70	0.95
No	7	33.3	3	30	(0.57 ; 1.58)

Legend: PR = Prevalence ratio; CI = 95% Confidence interval

Figure 1 illustrates the result of the analysis of the application of the Weight of Evidence - WoE (Weight of Evidence) binary classification model to assess the determinants that allowed distinguishing the influence on the classification of an individual in any of the G1 and G2 groups. Thus, it can be seen that Q9- I receive psychological counseling has a very strong influence, followed by Q12 Has stopped treatment, Q3 Family showed compassion

toward the participant and Q11 is afraid, with a strong influence. The other determinants do not contribute to better differentiate G1 and G2 groups.

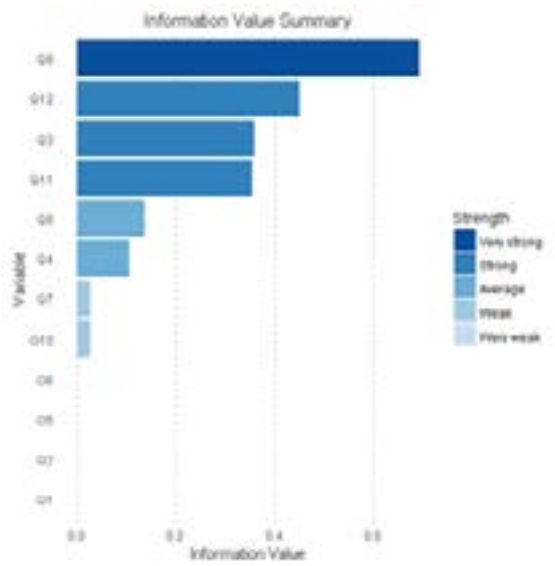

Figure 1 - Influence of determinants in the classification for groups G1 (adherence) and G2 (non-adherence). João Pessoa, PB, Brazil, 2017

Figure 2 shows a decision tree that aims to identify, among the determinants that could be analyzed by the instrument, the one that most contributed to classify an individual in the G1 or G2 group. The decision tree shows that the main difference between these two groups is determinant Q9 -I receive psychological counseling, which when absent (answer "No") shows a 83.3% probability of these patients adhering later to ART treatment, being able to correctly classify 75% of the individuals. It correctly classifies 80% of G1 group and 63.6% of G2 group.

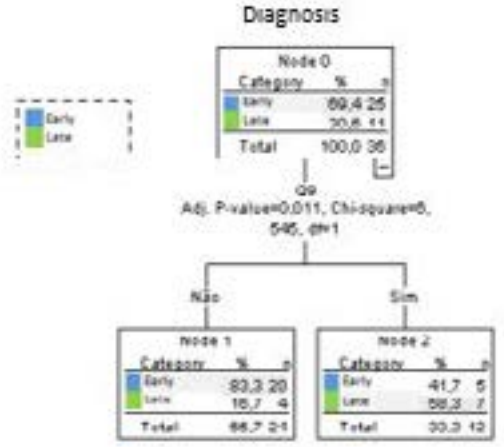

Figure 2 - Decision tree for determinants regarding groups G1 (adherence) and G2 (non-adherence). João Pessoa, PB, Brazil, 2017

In the evaluation of the statistical differences between G1 and G2 with the application of MANOVA regarding the dependent variables (D3 and D4) of the knowledge test, Box's M test for the comparison of the covariance matrices of G1 (adherence) and G2 (non-adherence) groups showed a p value = 0.445, which can be considered equal in both groups, Therefore, there is no need for corrections in test statistics based on MANOVA.

Regarding the results of the use of Levene's test, it showed a p value = 0.605 for dimension D3 and a p value = 0.949 for dimension D4, allowing to conclude that there is homogeneity of variances in G1 and G2 groups.

Thus, the two results (Levene's and Box's M tests) allow the application of the MANOVA model to these data. The last column of Table 3 shows the p-value of Wilk's lambda in multivariate analysis of variance test, indicating the existence of a significant difference between groups G1 and G2 for dimensions D3 and D4 together. According to the F test (that compares the ratio of two variances) dimension D3 is probably responsible for a statistical difference between these two groups.

Table 3 - Multivariate analysis of variance for t dependent variables D3 (Contagion and prevention, physiological and behavioral attributes) and D4 (Symptoms caused by HIV in humans), by groups G1 (adherence) and G2 (non-adherence). João Pessoa, PB, Brazil, 2017

Dimension	Group	Mean	SD	F Ratio	Wilk's lambda
D3	G1	19.08	2.94	0.028	0.049
	G2	21.36	2.20		
D4	G1	18.76	2.50	0.869	
	G2	18.91	2.43		

Legend: SD – standard deviation; Wilk's lambda

DISCUSSION

This study found a predominance of individuals aged 40- 59 years in both groups, and this finding is consistent with the profile of Brazilians living with HIV/AIDS [3].

Male gender was predominant in both groups, corroborating the findings of other investigations [7,13]. However, it should be noted that in the non-adherence group (G2), the number of women was practically the same as that of men. Therefore, there has been a change in the gender ratio scores with the increase in the number of cases among women, although men are still the most affected [14].

Still regarding gender equality in the G2 group found in this study, it is contradicted by a study [15,16] that confirms the predominance of men with low adherence to treatment. However, another study [17] reports a significantly higher percentage of women that do not adhere to treatment Thus, it is suggested that environmental, psychological and physical factors are more relevant to treatment adherence than gender[18].

Regarding marital status, there was a predominance of single individuals in both groups, corroborating other studies [19,20]. Single people are less careful about their health, as they cannot count on others to assist them [19].

Regarding the distribution of the groups by educational level, low rates were found in both groups. Thus, the present study is similar to other studies conducted in Brazil[13,21] and is consistent with the pattern found in the last Epidemiological Bulletin of the Ministry of Health in 2018[3].

This study also found that individuals with a higher level of education were in the adherence group, a result similar to that of another study [19]. Therefore, higher level of education is generally associated with good adherence, indicating a better correlation with people's perception, as well as access to information on HIV/ AIDS [7,19].

The data related to determinants Q1 ... Q12 made it possible to associate their results with those of a study conducted in Uganda on PLWHA that highlights coping strategies based on the emotions of each person, such as maintaining confidentiality, optimism with treatment, seeking social support, rationalization, spirituality/religiosity, among others. In addition to identify the need to analyze these determinants that influence non-adherence to ART, the present study found that establishing a professional bond from the first appointment until follow-up is important [22].

The role of health professionals in this process is crucial: it is considered part of the care and necessary for adherence. Family support is also important, especially at the time of diagnosis, since the lack of this support is an obstacle that PLWH encounter when they receive a positive diagnosis for HIV/AIDS [8].

Feelings of embarrassment, fear and discrimination were not detected in the non-adherence group. These results contradict those of a study carried out in Minas Gerais where the main feeling reported by the respondents was fear [4]. A study conducted in Germany revealed that participants who were afraid to disclose their HIV status were more likely to be socially isolated and with constant negative thoughts, with stigmatization and discrimination being the main reasons for social isolation [23].

Adherence is one of the greatest challenges of the multidisciplinary team involved in the treatment, and it is impacted by factors related to physical, physiological and psychological disorders induced by the syndrome itself and by the treatment. Thus, adherence to HIV/ AIDS treatment is not limited to a singular behavior. It is also influenced by several aspects and external and internal factors that can favor or weaken adherence to ART [8].

Receiving psychological counseling is a determinant that influences the classification of an individual in groups G1 or G2; Thus, the psychological and social dimensions of patients living with HIV/AIDS must be considered. Psychological counseling allows addressing new issues related to PLWHA, with actions that should be based on the encouragement of autonomy, involving the support of the health system structure, social institutions and civil society movements [24].

Thus, adherence to treatment comprises not only medication adherence, but also factors related to the empowerment of the individuals as responsible for their self-care, to provide a better quality of life [7].

Greater likelihood of belonging to the adherence group and not having psychological counseling is an interesting and unusual finding of the present study, which contrasts with studies that demonstrate that individuals on ART therapy need psychological counseling to better cope with the disease over time [25]. Therefore, this data may indicate that acceptance of the disease is an important strategy in the management of ART, and that this circumstance can make the individual feel safe enough to dispense with psychological support.

The decision tree also determined a probability of 58.3% of the participants of the study who receive psychological counseling to adhere later to treatment, demonstrating that these individuals need professional psychological counseling to adhere to ART in the future.

Lack of knowledge or information about the disease is a significant variable. This

scenario can lead to non-adherence to ART, irregular use of antiretrovirals or intake of insufficient doses of the drugs. Hence, the success of the therapy can be compromised, limiting treatment options, allowing continuous transmission of viruses, affecting the patients and public health. Therefore, knowledge about the disease and drug regimen is a fundamental condition for therapeutic progression [13].

The limitations of this study are related to the sampling and the fact that the study was conducted in only one municipality. Moreover, the use of self-report instruments can lead to memory bias.

CONCLUSION

The present study aimed to analyze knowledge about HIV/AIDS and the factors that influence adherence to antiretroviral therapy of people living with HIV/AIDS. Marital status, education, religiousness, fear and not having psychological counseling were key factors in this process.

However, although our results indicate that the individuals in the adherence group do not have psychological counseling, it should be stressed that focus on the biopsychosocial aspects of patients is a key factor for adherence to therapy, and that the present study is important in that it enables the identification of individuals who have not adhered to ART and use this therapeutic approach (psychological counseling) to increase their chances of future adherence to treatment.

The nursing sector, managers and the entire multidisciplinary team can and should create groups that promote knowledge about HIV/AIDS and the appropriate management of treatment, discussing the difficulties faced by patients and professionals, thereby enhancing early adherence to ART, improving the relationship between the patients and the health service, and promoting the autonomy and perception of people living with HIV/AIDS.

The main contribution of this study is the presentation of new scientific knowledge on adherence to ART in the northeastern region of Brazil, to enhance the response to HIV/AIDS for the benefit of society as a whole.

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