

# CUIDADO É FUNDAMENTAL

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RESEARCH

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## QUALITY OF LIFE ACCORDING TO THE MOST PREVALENT COMORBIDITIES IN THE ELDERLY WITH THE ACQUIRED IMMUNODEFICIENCY VIRUS

*Qualidade de vida segundo comorbidades mais prevalentes em idosos com o vírus da imunodeficiência adquirida*

*Calidad de vida según las comorbilidades más prevalentes en el anciano con el virus de la inmunodeficiencia adquirida*

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### ABSTRACT

**Objective:** to assess quality of life according to the most prevalent comorbidities in elderly people with HIV. **Method:** cross-sectional study carried out with 241 elderly people of both sexes, users of reference services for monitoring HIV patients. The data were obtained through a face-to-face interview by completing a sociodemographic and clinical questionnaire in addition to the HIV / AIDS Target-Quality of life. **Results:** the three most prevalent comorbidities were hypertension, diabetes and osteoporosis and among all the comorbidities found, only hypertension and diabetes did not show a statistically significant difference with any of the dimensions of HIV / AIDS Target-Quality of life. **Conclusion:** osteoporosis and osteoarthritis are comorbidities that have an impact on more dimensions of quality of life.

**DESCRIPTORS:** Quality of life; Comorbidity; Aged; Aged 80 and over; HIV.

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## RESUMO

**Objetivo:** avaliar a qualidade de vida segundo as comorbidades mais prevalentes em idosos com HIV. **Método:** estudo transversal realizado com 241 idosos de ambos os sexos usuários dos serviços de referência para acompanhamento do paciente com HIV. Os dados foram obtidos por meio da entrevista face a face com o preenchimento de um questionário sociodemográfico e clínico além do HIV/AIDS Target-Quality of life. **Resultados:** as três comorbidades mais prevalentes foram hipertensão, diabetes e osteoporose e dentre todas as comorbidades encontradas, apenas a hipertensão e o diabetes não apresentaram diferença estatisticamente significativa com nenhuma das dimensões do HIV/AIDS Target-Quality of life. **Conclusão:** osteoporose e osteoartrite são as comorbidades que tem impacto em mais dimensões da qualidade de vida.

**DESCRITORES:** Qualidade de vida; Comorbidade; Idoso; Idoso de 80 anos ou mais; HIV.

## RESUMÉN

**Objetivo:** evaluar la calidad de vida según las comorbilidades más prevalentes en ancianos con VIH. **Método:** estudio transversal realizado con 241 ancianos de ambos sexos, usuarios de servicios de referencia para el seguimiento de pacientes con VIH. Los datos se obtuvieron a través de una entrevista presencial mediante la cumplimentación de un cuestionario sociodemográfico y clínico además de la HIV/AIDS Target-Quality of life. **Resultados:** las tres comorbilidades más prevalentes fueron hipertensión, diabetes y osteoporosis y entre todas las comorbilidades encontradas, solo la hipertensión y la diabetes no mostraron diferencia estadísticamente significativa con ninguna de las dimensiones de HIV/AIDS Target-Quality of life. **Conclusión:** la osteoporosis y la osteoartritis son comorbilidades que repercuten en más dimensiones de la calidad de vida.

**DESCRIPTORES:** Calidad de Vida; Comorbilidad; Anciano; Anciano de 80 o más Años; VIH.

## INTRODUCTION

Studies on the quality of life of people living with HIV have been developed since the beginning of the epidemic. Advances in treatment, the development of new drugs and the combination of antiretroviral drugs have enabled a significant improvement in the quality of life of these individuals, bringing with it, as one of the benefits, increased survival, thus enabling these people to reach old age. Data from the Ministry of Health show that between 2007 and 2017, more than 5,600 new cases of this disease were registered among the elderly, and in this perspective, it is projected that in 2030 more than 70% of the people living with the Human Immunodeficiency Virus (HIV) will be 50 years old or older.<sup>1</sup>

It is known that advancing age is naturally accompanied by the risk of involvement by multimorbidities in addition to changes in immunity, and from this perspective, taking into account the changes that occur in the human body after being infected, it is understood that HIV in old age may involve greater risks to the individual's health due to some aspects: greater predisposition to the appearance of opportunistic infections;<sup>2</sup> due to persistent immune activation there is a high risk of developing cardiovascular events; the continuous use of antiretroviral therapy causes a greater risk of metabolic alterations, hypercholesterolemia among others.<sup>3</sup>

Thus, based on this assumption, the objective of the present study was to assess quality of life according to the most prevalent comorbidities in elderly people with HIV. This knowledge may facilitate decision making when establishing priorities for monitoring and treatment of comorbidities that negatively interfere with quality of life, as well as provide a field for dialogue between

professionals, patients and families to seek the best interventions to improve quality of life.

## METHOD

This is a cross-sectional study with a quantitative approach carried out in Recife-PE, Brazil. The study population was composed of people of both genders aged 60 years or older with positive diagnosis for HIV using the public referral services for monitoring patients living with HIV. After the final calculation using the Finite Population Correction Factor (FPCF), it was identified the need to interview 241 individuals in the established age range. Seven facilities, among the eight referral services for treatment and follow-up of HIV patients in Recife-PE, were selected as field for data collection.

The inclusion criterion was "being on antiretroviral therapy for at least 30 days", and the exclusion criterion was "unsatisfactory cognitive level according to years of study", verified through the Mini Mental State Examination. The Brucki et al<sup>4</sup> version was used in this study, where the reference values are defined by years of study: illiterate (20 points); 1 to 4 years of study (25 points); 5 to 8 (26.5 points); 9 to 11 (28 points), and more than 11 years of study (29 points).

We used a structured questionnaire with sociodemographic and clinical questions and the HIV/AIDS Target Quality of Life (HAT-QoL) scale. The data were collected through medical records and individual face-to-face interviews in the period from October 2016 to May 2017 only on weekdays, in the morning and afternoon. For data analysis, initially an Excel® spreadsheet was created and later the data were transferred to a definitive

database through the Statistical Package for the Social Sciences (SPSS) 22.0. The data analysis was divided into the steps described below:

1) Characterization of the sociodemographic and clinical profile. The variables investigated in the sociodemographic profile were: sex; age (60 to 64 years 11 months and 29 days, 65 to 69 years 11 months and 29 days,  $\geq 70$  years); education in years of study (illiterate, 01 to 04 years, 05 to 08 years, 09 to 11 years and more than 11 years of study); marital status (single, married or stable union, widowed, separated or divorced); individual monthly income based on the minimum wage at the time of collection (no income or income  $< 1$  salary, 1 to 2 salaries, 3 to 4 salaries, and  $> 4$  salaries); self-reported race (white, black, brown); religion (Catholic, evangelical, spiritualist, or others, and no declared religion). To characterize the clinical profile, we investigated the time of HIV diagnosis and the presence of comorbidities through records in medical records or through the interviewees' reports.

2) Characterization of the HAT-Qol dimensions (general function, life satisfaction, health concerns, financial concerns, medication concerns, acceptance of HIV, confidentiality concerns, trust in the professional who performs clinical follow-up and sexual function) and assessment of quality of life according to the most prevalent comorbidities identified through medical records and interviewees' reports. It is worth mentioning that each domain of the HAT-Qol has a score that ranges from zero (0) to one hundred (100), and the higher the value, the better the quality of life in that dimension.

Descriptive statistics were used to characterize the socio-demographic and clinical profile and the scores found in the HAT-Qol domains were described by means. The Shapiro-Wilk test was used to verify the normality of the sample, but normality was not found in any of the variables investigated. As the variables were divided into groups, such as "time of diagnosis", which was classified into five categories, the non-parametric Kruskal-Wallis test (used when the comparison occurs between three groups or more) and the Mann-Whitney test (used when the comparison occurs between two groups) were used to test the hypothesis that the analyzed groups had equal distribution.

However, among the groups compared, we chose to identify which ones had differences among themselves. For this, we used the Campbell and Skillings multiple comparisons test.<sup>5</sup> It should be noted that a 5% significance level was considered for all tests used. This study is an integral part of the project "Identification of the social and epidemiological profile of elderly people infected with HIV/AIDS assisted in reference services" which was approved by the Research Ethics Committee, on September 1, 2016, opinion number: 1.707.441, CAAE n° 57919716.0.0000.5208, thus obeying the ethical recommendations of Resolution.

## RESULTS

Among these, 151 were male, 131 were aged between 60 and 64 years 11 months and 29 days, 69 had attended school for 1 to 4 years, 83 were single, 134 had an individual monthly income equivalent to 1 or 2 minimum wages in force during the study period (nine hundred and thirty-seven reais – R\$ 937.00), 147 declared themselves to be brown-skinned, and 125 were Catholic. As for the clinical profile, 44 said they had been diagnosed positive for HIV in the last 10 or 15 years, and a variation was identified where the most recent diagnosis was 6 months before the beginning of the study and the latest, 30 years ago.

About the prevalent comorbidities, according to data collected from medical records and reported by the interviewees, in first place was systemic arterial hypertension (SAH), present in 94 people (41.4%), being more prevalent in women. In second place was diabetes mellitus (DM) in 59 individuals (26.1%) followed by osteoporosis in 31 people (13.8%), the latter being more prevalent in females. Besides these, depression was also identified in 5 people (5.4%), osteoarthritis in 26 (11.5%), cardiovascular problems in 24 (10.7%), neurological problems in 24 (10.7%), respiratory problems in 11 (4.9%), and smoking, as shown in Table 1.

When assessing quality of life according to comorbidities, it was identified that those without SAH had a better quality of life in the dimensions "general function, satisfaction with life, financial concerns, and sexual function". In addition, there was no statistically significant difference in any of the dimensions with SAH. In contrast, not having diabetes resulted in higher means in all dimensions except "medication concerns". However, no statistically significant difference was observed between the HAT-Qol dimensions and diabetes comorbidity as shown in Table 2.

When the evaluation was performed from the point of view of cardiovascular diseases, a statistically significant difference was identified in the dimensions "life satisfaction, concerns with confidentiality, and trust in the professional". It was observed that the presence of cardiovascular diseases resulted in lower means in the dimensions "health concerns and sexual function". Regarding osteoporosis, statistically significant differences were found in "general function, life satisfaction, health concerns, and sexual function", and among all the dimensions assessed, the lowest mean was found in "HIV acceptance", as shown in Table 2.

**Table 1** – Characterization of the participants according to smoking status. Recife, PE, Brazil, 2021

Smoking	Total	
	N	%
Never smoked	96	39,8%
Ex-smoker	105	43,6%
Smoker	40	16,6%

About osteoarthritis, we noticed lower means in “acceptance of HIV, concern with confidentiality and trust in the professional”, besides a statistically significant difference in “general function, life satisfaction, health concerns and medication concerns”. As for neurological diseases, this difference was observed only in “life satisfaction, health concerns, and financial concerns”, however, the lowest means were observed in “trust in professional and sexual function” as shown in Table 2.

Regarding respiratory diseases, the lowest means were identified in “general function, satisfaction with life, and confidence in the professional”, and no statistically significant difference was found in any of the dimensions evaluated. As for depression, it was noted that the depressed elderly had lower means in most dimensions when compared to those who were not depressed. In this variable, a statistically significant difference was only found in the dimension “privacy concerns”, differently from smoking, where the difference was only found in sexual function, according to Table 2.

Those who never smoked had better means in the general function, financial concerns, medication concerns, and trust in the professional, while the former smokers had the highest mean in “health concerns”. In relation to smokers, it was observed that they presented higher averages in the following dimensions: life satisfaction, HIV acceptance, confidentiality concerns, and sexual function. When the multiple comparisons test was used, it was observed that never smokers had a statistically significant difference in relation to former smokers and smokers, as shown in Table 2.

Regarding the time of diagnosis, it was identified that those who had been diagnosed more than 20 years ago obtained the best averages in seven of the nine dimensions evaluated. A significant difference was identified in the dimensions “financial concerns and acceptance of HIV”, but after analysis with multiple comparisons test this difference was maintained only in this second dimension, in which it was observed that those who had been diagnosed less than five years ago showed a lower result compared to the others, as shown in Table 2.

## DISCUSSION

One notices the prevalence of the male gender and of an age group of young elderly people who mostly said they were single.<sup>6</sup> About schooling, one fact draws attention, although most of them had attended school for at most four years: among the illiterate, most were women, and among those who had attended school for eleven years or more, most were men. This difference in the level of education between men and women infected by HIV can be observed since the first cases reported in Brazil.<sup>7</sup>

This difference can have direct repercussions on income, which was indeed observed in this study. Although the majority reported having an individual monthly income ranging from one to two minimum wages, most of those with incomes over four wages were males. Thus, a considerable economic discrepancy

between men and women is noted, which, according to information published in 2016 by the Global Gender Inequality Report, will take a period of approximately 170 years to be remedied. It is worth noting that the axes evaluated by this report published annually are: access to education; health and survival; political empowerment, and economic opportunity. The objective of this publication is to annually analyze the process of progression of parity between the sexes.<sup>8</sup>

The prevalence of browns and Catholics in this study is similar to the national HIV profile.<sup>9</sup> Similar data were also found in the study by Cunha et al.

Besides the benefits of spirituality and religiosity in living with HIV, another element that has brought benefits to these people is the antiretroviral therapy (ART). Its benefits can be observed in the survival time (a fact that could be proven in this study, where patients with more than 20 years of diagnosis were found), in the prevention of opportunistic infections, and in the prevention of progression to AIDS itself. However, like any medication, ART, in addition to its many benefits, can also cause unwanted events that may be related to its prolonged use and consequent toxicity or emergence of resistant viral diseases.<sup>11</sup>

It is worth noting that advancing age is often accompanied by multiple physical, psychological, and organic changes that can cause a greater risk of comorbidities, especially in those individuals taking ART. Hypercholesterolemia, glucose intolerance, and other metabolic alterations are examples of comorbidities. When it comes to the elderly, there is an increase in the incidence of cardiovascular diseases that besides having the “age” factor as one of the causes, there is also the endothelial injury caused by persistent activation of the immune system in response to infection.<sup>3</sup>

Besides these, biochemical alterations in bone metabolism also occur, predisposing the individual to osteoporosis.<sup>12</sup> These facts justify the three main comorbidities found in this study: hypertension, diabetes, and osteoporosis. Another comorbidity identified in this study, but which was not among the first three, was depression. This was more common in females and can be explained by hormonal changes specific to the phase, in addition to the stigma caused by HIV.<sup>13</sup> Even taking into consideration that most participants declared themselves to be former smokers, unlike women, among those who smoke, there are more men, and this behavior can be associated with fun, freedom, and irreverence.<sup>14</sup>

When assessing quality of life according to the most prevalent comorbidities in this study, we noticed that this variable did not suffer interference from diabetes or hypertension in any dimension. This finding may be associated with the fact that, even though they are chronic diseases of progressive nature, they can be controlled with affordable medication and with the adoption of healthy habits, and if an individual adopts a healthy lifestyle, the repercussions on the dimensions related to his or her quality of life may be positive. On the other hand, all the other comorbidities identified presented a significant difference in one

**Table 2** – Characterization of quality of life according to the most prevalent comorbidities according to interviewees' reports and information from medical records. Recife, PE, Brazil, 2021

	General function	Satisfaction with life	Health concerns	Financial Concerns	Medication Concerns	HIV Acceptance	Confidentiality Concerns	Confidence in the professional	Sexual Function
	Mean (SD)**	Mean (SD)**	Mean (SD)**	Mean (SD)**	Mean (SD)**	Mean (SD)**	Mean (SD)**	Mean (SD)**	Mean (SD)**
<b>HAS**</b>									
Absent	75,7 (21,3)	75,3 (22,2)	82,9 (25,6)	60,9 (32,9)	85,8 (20,2)	79,1 (31,8)	49,3 (28,9)	74,6 (28,9)	57 (42,6)
Present	72,8 (25,5)	75,1 (25,6)	83,2 (23,2)	59,9 (36,8)	87,6 (19,2)	83 (30,2)	50,1 (29,9)	79,3 (26,8)	48,9 (41,4)
<b>p-value</b>	0,664	0,637	0,658	0,929	0,658	0,3	0,86	0,344	0,154
<b>DM**</b>									
Absent	75,8 (22,5)	77,6 (20,9)	83,2 (25,6)	60,2 (33,8)	86 (20,6)	81,5 (30,1)	50,1 (29)	77,2 (28,3)	56 (42,2)
Present	70,6 (24,7)	68,1 (28,9)	82,4 (21,9)	59,9 (36,2)	87,9 (17,1)	78,2 (34,2)	49 (30,1)	74,3 (27,3)	46,2 (41,6)
<b>p-value</b>	0,125	0,061	0,28	0,942	0,919	0,858	0,703	0,314	0,129
<b>DCV**</b>									
Absent	75,1 (22,5)	76,6 (22,9)	82,6 (25,3)	61,4 (34)	86,8 (19,9)	81,4 (30,5)	51,3 (28,9)	78 (28)	52,8 (42,5)
Present	67,5 (28,2)	63,8 (26,9)	84,9 (19,6)	49,7 (35,8)	84 (19,3)	72,4 (36,5)	38,3 (30,3)	65,3 (26,1)	59,9 (39,7)
<b>p-value</b>	0,253	<b>0,018</b>	0,779	0,139	0,601	0,135	<b>0,042</b>	<b>0,019</b>	0,485
<b>Osteoporosis**</b>									
Absent	76,1 (22,2)	77 (22,4)	84,1 (24,2)	61,2 (34,5)	87,4 (19)	80,3 (31,2)	50,6 (29,4)	77,5 (27,2)	56,3 (41,6)
Present	63,4 (26,5)	65,1 (28,6)	75,8 (26,8)	54,6 (33,5)	81,3 (24,1)	81,9 (31,8)	44,8 (28,4)	72 (32,2)	38,3 (43,7)
<b>p-value</b>	<b>0,009</b>	<b>0,034</b>	<b>0,029</b>	0,252	0,116	0,541	0,316	0,495	<b>0,034</b>
<b>Osteoarthritis**</b>									
Absent	76 (22,3)	76,6 (22,8)	84,2 (24)	61,5 (34,2)	87,6 (18,9)	80,2 (31)	49,4 (29,1)	76,5 (28,1)	55,4 (41,6)
Present	63,5 (27,3)	64,9 (26,8)	74,3 (28,1)	51 (35,1)	78,8 (24,4)	85,1 (32,2)	52,5 (30,5)	77,6 (27)	39,9 (45,1)
<b>p-value</b>	<b>0,022</b>	<b>0,033</b>	<b>0,023</b>	0,124	<b>0,039</b>	0,316	0,637	0,842	0,113
<b>Neurological Diseases**</b>									
Absent	75 (22,9)	76,2 (23,3)	83,8 (24,3)	61,1 (34,4)	86,9 (19,6)	81,2 (30,3)	50 (28,9)	76,6 (28,1)	53,3 (42,3)
Present	61 (27,4)	57,4 (24)	65,3 (26,7)	41,7 (28,4)	78,6 (22,7)	65,9 (46,1)	47,7 (37,6)	78 (26,4)	58 (40,8)
<b>p-value</b>	0,065	<b>0,009</b>	<b>0,005</b>	<b>0,047</b>	0,126	0,383	0,794	0,99	0,696
<b>Respiratory Diseases**</b>									
Absent	74,1 (23,6)	75,3 (23,8)	83,2 (24,2)	60,5 (34,3)	86,5 (19,7)	80,7 (30,8)	50,5 (29,2)	76,4 (27,9)	54,2 (42,3)
Present	75,8 (11,8)	78,1 (19,2)	76,3 (35,9)	55 (36,5)	86 (24,7)	73,8 (41,9)	32 (24,4)	86,7 (26,7)	42,5 (40,9)
<b>p-value</b>	0,597	0,953	0,837	0,584	0,85	0,789	0,06	0,226	0,35



or more dimensions, which implies that in the present study, except for diabetes and hypertension, the other comorbidities found interfere in the quality of life.

Among these, the ones that presented a significant difference with more dimensions were the ones related to bone problems: osteoporosis and osteoarthritis. These showed influence in the general function, life satisfaction, health concerns, medication concerns, and sexual function. This was followed by cardiovascular diseases with repercussions on life satisfaction, confidentiality concerns, and trust in the professional, and neurological diseases with repercussions on life satisfaction, health concerns, and financial concerns.

As mentioned, ART causes changes in bone metabolism, predisposing the individual to the development of problems in this system. Among these changes is bone demineralization, a consequence of personal factors (age, sex, heredity, ethnicity, smoking, nutritional factors, alcoholism, and sedentary lifestyle),<sup>15</sup> the virus, and ART. Bone tissue undergoes constant synchronous remodeling and this process may suffer interference due to HIV infection.

In this sense, when mineralization decreases, osteopenia occurs and may culminate in osteoporosis.<sup>16</sup> It is noteworthy that this morbidity may interfere with the performance of activities of daily living due to complications related to fractures, most of which are caused by falling from height, which may be due to decreased trunk muscle strength, changes in the spine, such as kyphosis, and changes in range of motion and motor coordination. All these factors may predispose the individual to functional disability, resulting in a worsened quality of life.<sup>17-19</sup>

Like osteoporosis, osteoarthritis can also cause disability in individuals, directly compromising their functionality and ability to perform activities of daily living due to its main characteristic: persistent pain. Most of the time this is associated with joint stiffness and dysfunction. Such factors cause a negative impact on the individual's quality of life, making it a stressful experience.<sup>20</sup>

Taking into account the changes and symptoms caused by osteoporosis and osteoarthritis, it is valid to think that in fact these can affect several dimensions of the individual's quality of life, ranging from general functions to sexual function. In addition, there are concerns about health and medication, because, as mentioned before, osteoporosis can be one of the consequences of ART. With such repercussions, there is no way to disregard an interference in life satisfaction, a result found in this study.

## CONCLUSION

This research could contribute to the scarce literature on the subject, with which it was possible to identify which dimensions of the quality of life of the elderly individual with HIV can be affected by comorbidities. The results indicate that quality of life is not affected by diabetes and hypertension. On the other hand, osteoporosis and osteoarthritis are the comorbidities that interfere in more dimensions. However, no comorbidity should

be neglected; instead, individuals should be offered options for strategies to manage those that most impact their quality of life.

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