

## Differences in quality of life and food insecurity between men and women living with HIV/AIDS in the state of Paraíba, Brazil

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**Abstract** *A prevalence study was conducted to compare quality of life and food insecurity in men and women living with HIV/AIDS. The sample comprised 481 HIV-infected individuals undergoing antiretroviral therapy at a referral hospital in the State of Paraíba, Brazil. Food insecurity and quality of life were assessed using the Brazilian Household Food Insecurity Scale and WHO-QOL-HIV Bref, respectively. The results were presented as absolute and relative frequencies and gender differences were tested using the chi-squared test adopting a significance level of 0.05. The findings showed that 40.1% of the sample were women. A higher percentage of women than men had a low income and low education level (65.8% and 72.5%, respectively). Prevalence of food security was lower in women than in men (29.0% compared to 42.7%), and a higher percentage of women than men reported below average quality of life (54.9% compared to 44.4%). The findings reveal that, besides the usual difficulties faced by HIV-infected patients, this group showed a significant level of gender inequality. The management of HIV patient care should consider these important findings, promoting access to care and support services and gender equality so that women can live fairer and more equal lives.*

**Key words** *HIV, Gender Identity, Food and Nutritional Security, Quality of Life*

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## Introduction

Before the introduction of antiretroviral therapy (ART) in the middle of the 1990s, HIV-infected individuals rapidly progressed to AIDS and, consequently, death. Today, adequate treatment permits a near-normal life expectancy<sup>1</sup>. In 2017, there were 36.9 million [31.1 million – 43.9 million] people living with HIV worldwide. Although the disease is more prevalent among men, every week around 7,000 young women aged between 15 and 24 years are infected. Globally, HIV is the leading cause of death among women aged between 30 and 49 years<sup>2</sup>. In Brazil, up to June 2018, 926,742 cases of HIV had been reported and, up to 31 December 2017, 327,655 deaths with HIV/AIDS as the underlying cause<sup>3</sup>.

People living with HIV/AIDS (PLHA) constitute a specific and vulnerable group<sup>4</sup> undergoing permanent treatment using complex high-cost therapies. Brazil's national guidelines for the management of HIV infection in adults highlight the importance of treatment adherence, which includes healthy eating necessary for the proper functioning of the metabolism, preservation of the immune system, and improving tolerance to antiretroviral drugs, by both facilitating their absorption and preventing side effects<sup>5,6</sup>.

With the increased survival rate provided by ART, HIV-infected individuals are concerned not only with the capacity of treatment to increase years of healthy life, but also with maintaining quality of life<sup>7</sup>. Quality of life is an important basic need and also influences morbidity and mortality<sup>8</sup>. Studies show a positive correlation between better quality of life and adherence to ART, while the latter directly influences viral load and is associated with the progression of the disease to later stages<sup>9</sup>.

Studies also note that food and nutrition insecurity is associated with decreased adherence to ART<sup>10</sup>. Food and nutrition insecurity is an unequivocal violation of the right to adequate food characterized by irregular access to food of the quality and quantity needed to maintain a healthy life in a socially acceptable manner while also respecting the cultural characteristics of individuals<sup>11</sup>.

The increasing prevalence of HIV-infected women is a reality and it is therefore important to know whether the living conditions of this group are similar to those experienced by men in order to improve the management of the disease.

This study therefore examined differences in prevalence of food insecurity and quality of

life scores between men and women living with HIV/AIDS, given that these factors influence adherence to treatment, which in turn is essential to control the virus and prevent progression of the disease to later stages.

## Methods

A cross-sectional study was conducted with people living with HIV/AIDS receiving treatment at the Clementino Fraga Infectious Disease Hospital Complex, a referral hospital specializing in the diagnosis and treatment of HIV located in João Pessoa in the State of Paraíba.

All people attending clinical follow-up appointments during the period 2 September to 23 December 2015 were considered eligible to participate in the study.

The following inclusion criteria were adopted: patients diagnosed with HIV at any stage of infection (asymptomatic, symptomatic, and/or AIDS); patients aged over 18 years; and patients who had been undergoing ART for at least six months. With respect to ART, the most commonly used medications are nucleoside reverse transcriptase inhibitors and protease inhibitors. The following individuals were excluded: people whose clinical condition prevented their participation in the study; people in confinement or institutionalized; and pregnant women. All of the 503 PLHAs attending follow-up appointments during the study period were recruited. Twenty-two (4.4%) were excluded because they provided incomplete answers to the data collection instrument, generally because they were called for the appointment and failed to return to the interview, resulting in a final study sample of 481 people.

Previously trained interviewers conducted face-to-face interviews while the patients were waiting for their appointment. The topics and respective items of the data collection instrument presented in Chart 1.

The measure used by this study to assess quality of life was the WHOQOL-HIV-BREF, consisting of 31 items divided into six domains scored on a five-point scale. This widely used instrument demonstrates good psychometric properties and high reliability (27 items obtained Cronbach's alpha values greater than 0.70 and the remaining items obtained values between 0.32 and 0.65) and excellent internal consistency and validity across items and domains, and is especially recommended for studies with PLHAs<sup>12,13</sup>.

For the purposes of this study, we only considered the overall score based on the scoring criteria proposed by the WHO<sup>12</sup>.

The Brazilian Household Food Insecurity Scale (EBIA, acronym in Portuguese) was adapted from the US Household Food Security Survey Module (HFSSM). Validated by Segall-Corrêa et al.<sup>14</sup> in 2003, the instrument is widely used in epidemiological studies in Brazil.

The measure consists of 14 items – or only 8 items for households without members under 18 years of age – used to classify food security status based on the sum of affirmative responses to the items as follows: food secure, mild food insecurity, moderate food insecurity, and severe food insecurity, where severe food insecurity indicates that family members experience hunger.

The data was double entered into a worksheet and the data set was analyzed using the statistical software Stata SE 14. The variables were described in frequency tables and the association between categorical variables was tested using Pearson's chi-squared test adopting a significance level of 0.05.

The study was conducted in accordance with the ethical norms and standards for research involving human subjects set out by National Health Council Resolution 466/2012<sup>15</sup> and approved by the Research Ethics Committee of the University of Paraíba's Health Sciences Center. All participants signed an informed consent form.

## Results

The results show that 40.1% of the sample were women. The characteristics of the sample by sex are shown in Table 1.

The age of the sample ranged between 18 and 87 years, with a median age of 44. This age was chosen to categorize the sample into two equal age groups. A higher percentage of men than women had completed at least 8th grade and earned more than half a minimum salary (38.9% versus 27.5% and 54.9% versus 34.2%, respectively). The percentages of men and women who lived with a partner and had an occupation were similar.

A higher percentage of women than men reported below average quality of life (54.9% versus 44.4%) (Table 2).

The overall prevalence of food insecurity was 62.8%, with 18% of respondents experiencing severe food insecurity (Figure 1).

However, the analysis of food security status by sex showed that the situation of women was worse than that of men, with a lower percentage of women than men reporting being food secure and a higher percentage reporting moderate and severe food insecurity (24.9% versus 12.8% and 19.2% versus 16.7%, respectively). It is also important to highlight that there was an association between food insecurity and quality of life in both sexes (Table 3). Among women, the more severe the food insecurity, the higher the prevalence of below average quality of life (28.6% among women who reported being food secure

**Chart 1.** Topics covered by the data collection instruments and description, João Pessoa-PB, 2015.

Topics	Description
<b>Patient characterization</b>	Sociodemographic information: patient record number, date of birth, age, sex, education level, marital status, family income (amount or number of minimum salaries), occupation, and number of household members by sex and age
<b>HIV/AIDS History</b>	Year in which tested positive, year in which the respondent thinks he/she was infected, how the respondent thinks he/she was infected, medication use and year in which they were first taken, self-reported health status, stage of HIV and if the respondent considers him/herself to be currently sick
<b>Habits</b>	Smoking, drinking, and drugs (current and past use), physical activity for more than thirty minutes three times a week and description of activity in the case of an affirmative response
<b>Assessment of quality of life</b>	WHOQOL–HIV BREF.
<b>Assessment of food security status</b>	Brazilian Household Food Insecurity Scale (EBIA, acronym in Portuguese)

Source: Elaborated by the authors.

versus 75.7% in those experiencing severe food insecurity). Among the men, the prevalence of below average quality of life was greatest in those who reported moderate food insecurity (78.4%).

## Discussion

The findings illustrate, as many other studies reveal, the feminization of HIV/AIDS and, consequently, the changing profile of the population affected by HIV<sup>1,3,16</sup>. Almost half of the sample were women, which has direct implications for the management of care for this group, especially

considering gender roles in society<sup>17</sup> and that we live in a male chauvinist and patriarchal society where women occupy a markedly disadvantaged position.

As the findings show, gender inequality, is not just a sociological problem, but also a health and nutritional issue, falling on the whole of society to fight for gender equality, so that women can live fairer and more equal lives<sup>18</sup>.

Another important feature is the growing number of older people affected by HIV. The median age of the patients in the present study was 44 years, confirming what other studies have shown in relation to increased susceptibility to

**Table 1.** Differences in the sociodemographic and economic characteristics of PLHAs by sex, João Pessoa-PB, 2015.

Variables	Sex		Total n (%)	p-value*
	Female n (%)	Male n (%)		
Age				0.425
Up to 44 years	100 (51.8)	153 (53.1)	253 (52.6)	
Over 44 years	93 (48.2)	135 (46.9)	228 (47.4)	
Education level				0.006
8th grade not completed	140 (72.5)	176 (61.5)	316 (65.7)	
8th grade or over	53 (27.5)	112 (38.9)	165 (34.3)	
Marital status				0.291
Living with a partner	71 (36.8)	97 (33.9)	168 (35.1)	
Not living with a partner	122 (63.2)	189 (66.1)	311 (64.9)	
Per capita income				0.000
Up to half a minimum salary	127 (65.8)	130 (45.1)	257 (53.4)	
More than half a minimum salary	66 (34.2)	158 (54.9)	224 (46.6)	
Occupation				0.380
With occupation/Active	90 (46.6)	129 (44.8)	219 (45.5)	
Without occupation/Inactive	103 (53.4)	159 (55.2)	262 (54.5)	
Total	193 (100)	288 (100)	481 (100)	

\*Pearson's chi-squared test.

Source: Elaborated by the authors.

**Table 2.** Differences in average quality of life of PLHAs by sex, João Pessoa-PB, 2015.

Average quality of life assessment	Sex		Total n (%)	p-value*
	Female n (%)	Male n (%)		
Below average	106 (54.9)	128 (44.4)	234 (48.6)	0.015
Above average	87 (45.1)	160 (55.6)	247 (51.4)	
Total	193 (100)	288 (100)	481 (100)	

\*Pearson's chi-squared test.

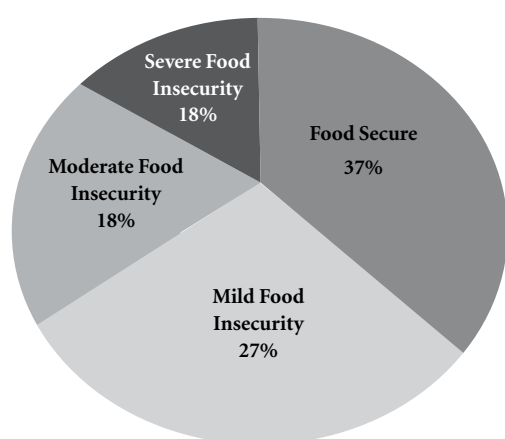
Source: Elaborated by the authors.

infection across all age groups, with particular concern regarding the rise in the number of cases among older people, representing another change in the profile of the disease<sup>19,20</sup>. In this regard, a study conducted in 2013 in Montevideo, Uruguay with a sample of 198 individuals reported that the average age of HIV patients admitted to a general hospital was 63 years. It is also interesting to note that the sample was made up

of similar percentages of men and women (53% versus 47%)<sup>21</sup>.

Our findings show that the proportion of respondents living with a partner was relatively low, corroborating the findings of other studies such as that conducted by Tesfaye et al.<sup>22</sup> in Ethiopia showing that only 37.3% of HIV-infected individuals were married. Although the present study shows similar percentages of men and women living with a partner, the type of relationship, which may vary between genders, and presence or absence of children in the household living as a family unit, was not investigated. A study that validated the EBIA for use with PLHAs showed differences in family composition between infected men and women, with the presence of children being more common among the latter<sup>5</sup>. It might be expected that the presence of children may influence adherence to ART; however, there is a lack of literature on the association between family composition and treatment adherence among PLHAs.

Other gender differences observed in our sample further aggravate the situation of women, such as lower education level and per capita income. These findings are similar to those reported by a study conducted in six Brazilian cities that carried out in-depth interviews with 85 women living with HIV/AIDS aged between 18 and 49 years. The results reveal a picture of social vulnerability characterized by low levels of edu-



**Figure 1.** Food security status among PLHAs, João Pessoa-PB, 2015.

Source: Elaborated by the authors.

**Table 3.** Differences in average quality of life and food security status of PLHAs by sex, João Pessoa-PB, 2015.

Food security status	Quality of life		Total n (%)	p-value*
	Below average n (%)	Above average n (%)		
Men				0.000
Food secure	32 (26.0)	91 (74.0)	123 (100)	
Mild food insecurity	40 (50.0)	40 (50.0)	80 (100)	
Moderate food insecurity	29 (78.4)	8 (21.6)	37 (100)	
Severe food insecurity	27 (56.3)	21 (43.8)	48 (100)	
Total	128 (44.4)	160 (55.6)	288 (100)	
Women				0.000
Food secure	16 (28.6)	40 (71.4)	56 (100)	
Mild food insecurity	27 (51.9)	25 (48.1)	52 (100)	
Moderate food insecurity	35 (72.9)	13 (27.1)	48 (100)	
Severe food insecurity	28 (75.7)	9 (24.3)	37 (100)	
Total	106 (54.9)	87 (45.1)	193 (100)	

\*Pearson's chi-squared test.

Source: Elaborated by the authors.

cation, precarious employment, and exposure to violence<sup>23</sup>.

This situation is not unique to Brazil. For example, a study conducted in 2015 in Cuba with HIV-infected patients noted that the majority of women had completed only primary school, while the majority of men had completed high school<sup>24</sup>. The differences in income observed by the present study, where the percentage of women earning less than half a minimum salary is markedly higher than men, is another important question to be taken into account in the management of care for this group.

Given that PLHAs are a biologically vulnerable group, the percentage of respondents who reported experiencing food insecurity (62.8%) is alarming, considering that it is double that of the general Brazilian population<sup>25</sup>. The reality in more developed countries is no different. Studies published in 2005, 2011, and 2013 using a cohort of HIV-infected individuals on highly active ART (HAART) in British Columbia, Canada reported the following results: the occurrence of food insecurity was nearly five times higher than in the general Canadian population; a high (71%) prevalence of food insecurity among HIV-infected individuals receiving HAART; food insecurity status is associated with a compendium of behavioral and environmental factors; and highly vulnerable groups such as HIV-positive injection drug users (IDUs) reporting food insecurity were almost twice as likely to die, compared to food secure IDUs<sup>26-28</sup>.

Our findings reveal that food security status is worse among women. Both the prevalence of moderate food insecurity (where people are forced to reduce the quantity of food they consume) and severe food insecurity (where household members experience hunger) is higher among women. Given that in Brazilian culture it is women who are mostly responsible for managing the household budget and preparing meals, this finding reveals that these people and their families face a grave situation in their everyday lives.

Studies conducted in Uganda in 2013 and 2014 with 902 PLHAs undergoing ART showed that those experiencing food insecurity were more likely to show poor clinical outcomes, contributing to a higher mortality rate. Access to food and diet quality are associated with quality of life and should be addressed by interventions designed to mitigate the psychosocial impact of HIV<sup>10,29</sup>. Our findings show an association between quality of life and food insecurity in both

sexes. The results are particularly worrying for women, given that quality of life is worse among this group than in men.

People with inadequate access to food can feel shame or embarrassment, which may be worse in PLHAs due to discrimination and other treatment needs<sup>30</sup>. Achieving and maintaining optimal nutrition is an important part of the clinical care of HIV-infected patients, since it can improve an individual's immune function, limit disease-specific complications, and improve quality of life and survival<sup>6</sup>.

It is notable that self-perceived quality of life is lower among women than in men. A study conducted in Ethiopia in 2016 with 1,180 people living with HIV/AIDS undergoing ART also reported gender differences for self-reported quality of life and the social, economic, and psychological impact of the disease. Multivariate analysis showed that psychological distress, low CD4+ count, unemployment, and food insecurity were associated with lower quality of life scores in both sexes. However, the effects of food insecurity on quality of life were greater among women, explained by the fact that women play a larger role in domestic responsibilities in the region<sup>31</sup>.

Gender equality and non-discrimination are basic human rights and components of a healthy, peaceful and prosperous world. Despite gender equality having been on the global health agenda for decades, gender inequality persists worldwide. Gender equality and discrimination jeopardize progress in the AIDS response and deprive women and girls of their basic rights and their ability to prevent HIV and access treatment<sup>32,33</sup>. Gender equality and women's empowerment are key for ending the AIDS epidemic by 2030<sup>2</sup>.

The findings paint a negative picture of the situation of HIV-infected women, in which a complex and interrelated set of factors accentuate the negative effects of each individual factor. Factors such as restricted income, low levels of education, food insecurity, low quality of life – and in the case of women gender inequalities – work together to make this group even more vulnerable.

## Conclusion

Despite advances in increasing survival in recent years, care management and quality of life remain a challenge for people living with HIV/AIDS.

This study shows that, besides being more vulnerable biologically, PLHAs undergoing clinical follow-up at a referral hospital in the State of Paraíba were socially vulnerable due to low levels of education and per capita income, unemployment, and not having a complete family unit.

This study provides important new information, revealing that the situation of female HIV-infected patients was worse than that of men, with women showing lower income and education levels, lower quality of life, and a higher prevalence of food insecurity, particularly moderate and severe insecurity.

It is known that throughout history women have faced inequality. This study shows that this trait of society is reflected in the situation of PLHAs in the State of Paraíba, emphasizing that gender inequality is not just a sociological problem, but also a health, quality of life, and nutritional issue.

It is important that healthcare services directed at PHVAs consider these factors in developing positive actions to tackle HIV/AIDS that go beyond the biological dimension, promoting access to care and support services and gender equality, so that women can live fairer and more equal lives.

## Collaborations

RLFC Lima, MF Silva and RPT Vianna worked on the conception, design, analysis and interpretation of data, writing of the article and approval of the final version. NIG Gomes, JNC Silva and MACBM Viana worked on the research and methodology of the final version.

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Article submitted 03/05/2019

Approved 01/04/2020

Final version submitted 03/04/2020

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Chief editors: Romeu Gomes, Antônio Augusto Moura da Silva

