

Review Article

Open Access

Epidemiological Profile and Occurrence of Deaths in People Living with HIV/AIDS: Cachexia Associated with Higher Mortality

Gabriely Ferreira Gonçalves^{1*}, Clara Sandra Araujo Sugisaki² and Karla Katiussuy Vieira Neto³

¹Nutritionist, Resident Multiprofessional in Health Attention Clinic with Emphasis in Infectious Diseases, Hospital State of Illnesses Tropical Dr. Anuar Auad, Goiânia, GO, Brazil

²Nutritionist, Doctor in Nutrition and Health, Hospital State of Illnesses Tropical Dr. Anuar Auad, Goiânia, Goiás, Brazil

³Nurse, Specialist in Management and Audit in Services of Health. Hospital State Illnesses Tropical Dr. Anuar Auad, Goiânia, Goiás, Brazil

ABSTRACT

Introduction: The epidemic related to the Human Immunodeficiency Virus (HIV), which causes acquired immunodeficiency syndrome (AIDS), represents a public health problem due to its rapid geographic spread, the possibility of metabolic complications resulting from its chronicity, and the reduced life expectancy of individuals who do not receive timely treatment. Universal access to health services and antiretroviral therapy has been essential for increasing the survival of people living with HIV/AIDS (PLWHA). However, the incidence of chronic comorbidities has increased proportionally. Cachexia is an important condition at the time of notification and is believed to be associated with poorer prognoses, such as mortality. Therefore, it is necessary to investigate the survival of PLWHA in this context.

Objective: To evaluate the relationship between cachexia and mortality among PLWHA.

Method: This is a retrospective, observational epidemiological study with a quantitative approach, based on secondary data from the Epidemiological Surveillance Center of the State Tropical Diseases Hospital Dr. Anuar Auad (HDT), obtained from the Notifiable Diseases Information System (SINAN) between 2018 and 2022. Investigated the relationship between cachexia and mortality to help inform future intervention perspectives for this population.

Results: Among 3,097 notified individuals, males predominated (71%), and the most frequent age group was 30 to 59 years. More than half of the sample had CD4+ T lymphocyte counts below 350 cells/mm³ (56%), a proportion that reached 79% among individuals with cachexia. Overall, 87.7% were alive, 11.9% died due to HIV/AIDS, and 0.4% died from other causes. Among the 1,103 cases with cachexia, 78.9% were alive and 21.1% progressed to death. Logistic regression analysis showed a statistically significant association between cachexia and mortality (OR = 1.01; 95% CI: 1.004–1.023; p = 0.007), indicating a proportionally higher risk of death in this subgroup.

Conclusion: The presence of cachexia was associated with higher proportional mortality among PLWHA, reinforcing the importance of developing strategies for the prevention and management of cachexia in this population.

*Corresponding author

Gabriely Ferreira Gonçalves, Nutritionist, Resident Multiprofessional in Health Attention Clinic with emphasis in Infectious diseases. Hospital State of Illnesses Tropical Dr. Anuar Auad, Goiânia, GO, Brazil.

Received: July 18, 2026; **Accepted:** July 24, 2026; **Published:** August 07, 2026

Keywords: HIV Seropositivity, Protein-Energy Malnutrition, Survival Rate, HIV Testing, Long-Term HIV Survivors

Introduction

The Human Immunodeficiency Virus (HIV) was identified in 1983 and belongs to the group of retroviruses. When it enters the nucleus... From the host cells, it makes millions of copies of itself, infects and ruptures cells of the human immune system, mainly CD4+ T lymphocytes, causing Acquired Immunodeficiency Syndrome (AIDS), which makes the organism highly susceptible to the development of tumors and opportunistic infections [1].

According to the 2023 HIV and AIDS Epidemiological Bulletin published by the Brazilian Ministry of Health, 43,403 new cases were reported. cases of infection for the HIV in 2022 totaling 489,594 cases since 2007. It was observed one reduction of 20.8% in rate of the detection rate of AIDS between 2012 and 2022 decreased from 21.6 to 17.1 cases per 100,000 inhabitants. This decrease was more pronounced among women (37.8%) than among men (10.8%). Furthermore, between 2012 and 2022, 52,415 young people aged 15 to 24 progressed from HIV infection to AIDS. highlighting need to intensify actions prevention and early diagnosis in this age group [2].

According to UNAIDS, in 2023, approximately 39.9 million people were living with HIV worldwide, of whom 53% were women and girls. In that same year, there were approximately 1.3 million new HIV infections and 630,000 AIDS-related deaths. Since the beginning of the epidemic, it is estimated that 88.4 million people have been infected with HIV and 42.3 million have died from AIDS-related illnesses. In Brazil, in 2019, there were approximately 920,000 people living with HIV/AIDS, representing 0.6% of the population, with approximately 14,000 deaths recorded that year [3].

In Brazil, estimates of HIV infection prevalence since the beginning of reporting in 2007, through the Notifiable Diseases Information System (SINAN), there were 300,496 cases of infection by the virus (2007 to 2019). In 2018, the following were registered by... System According to the Mortality Information System (SIM), there were a total of 10,980 deaths due to AIDS as the underlying cause, with a mortality rate of 4.4 per 100,000 inhabitants. The standardized mortality rate decreased by 22.8% between 2014 and 2018 [4].

People living with HIV/AIDS (PLWHA) face multiple complications that significantly increase the risk of mortality. Among these, opportunistic infections, cardiovascular diseases, kidney failure, and cancers such as Kaposi's sarcoma and lymphomas stand out. associates the progression from the illness. There are others factors what must to be considered, as coinfection with hepatitis viral infections and tuberculosis, resistance to antiretroviral drugs, and poor adherence to treatment. Furthermore, the cachexia, what and one of the main factors what worsen the painting clinical, compromises yet more the system The immune system and the response to treatment are directly associated. the one worse prognosis and increase from the mortality between PVHA [5,6]. Of agreement with the literature, Fearon et al. (2011) they published a consensus International what define the cachexia as a multifactorial syndrome characterized by involuntary loss of body weight, accompanied of depletion of mass muscular skeletal (with or without loss of fat) and what no he can to be reversed only by Nutritional replacement. THE cachexia this associated the illnesses chronicles as Cancer, failure cardiac, illness renal chronicle, Chronic Obstructive Pulmonary Disease (COPD) and AIDS. The underlying mechanisms include chronic inflammation, increased catabolism, hormonal imbalance, insulin resistance, and alterations in energy metabolism [7].

According to Evans et al. (2008), the diagnosis of cachexia in adults is based on involuntary weight loss exceeding 5% of body weight in 12 months (or less), in the presence of an underlying chronic disease. In cases where weight loss cannot be documented, a BMI < 20.0 kg/m² is sufficient. The diagnosis is further supported by the presence of three or more of the following criteria: decreased muscle strength, fatigue, anorexia, significant reduction in muscle mass, and the presence of systemic inflammation, evidenced by elevated inflammatory markers. Clinical evaluation is complemented by laboratory and imaging tests [8].

Cachexia is a common complication in people living with HIV/AIDS (PLWHA) and is strongly associated with increased mortality. Although frequently underreported on death certificates, studies indicate that cachexia is closely linked to fatal outcomes in these patients. For example, research conducted in the state of São Paulo revealed that, although cachexia is mentioned as a cause of death in only 7.9% of death certificates of patients with AIDS, its presence is strongly associated with the prognosis of death [9].

A recent study by Nunes et al., 2023 reinforced the association between cachexia and higher mortality among PLWHA. It was revealed that that the population that presented cachexia had significantly higher mortality rates, compared to those who did not develop the syndrome. The research observed that cachexia in PLHIV was not only related to a poorer response to antiretroviral treatment, but also increased vulnerability to opportunistic infections and comorbidities, such as cardiovascular diseases, which are crucial factors in increasing mortality [10].

These findings highlight the importance of early diagnosis and appropriate management of cachexia to improve survival and quality of life for individuals living with HIV/AIDS. Despite advances in understanding and health policies for people living with HIV/AIDS, it is essential Continuously monitor the factors that influence mortality. The observed changes have increased life expectancy and the manifestation of the disease in older age groups. The current challenge is to improve quality of life and control the infection effectively. and reduce the morbidity and mortality of this population. Studies of follow-up they can to help the to understand better to the causes from the reduction in survival of PLHIV using Antiretroviral Therapy (ART) [11].

In this context, the present work is important so that specific intervention measures for people living with HIV/AIDS can assist in the approach. The role of healthcare professionals in providing care to the population involves including people living with HIV/AIDS (PLWHA) in environments that contextualize food and nutritional education. Therefore, the overall objective of this study is to analyze the relationship between cachexia and mortality among PLWHA.

Methodology

This is an epidemiological, observational, retrospective study with a quantitative approach, based on secondary data collected at the Hospital Epidemiological Surveillance Center of the Dr. Anuar Auad State Hospital for Tropical Diseases (HDT). It is important to emphasize that this study used secondary data, thus eliminating the need for informed consent. However, a Data Use and Handling Commitment Agreement (TCUD) was developed to ensure... Anonymity was guaranteed. This was submitted to the Research Ethics Committee (CEP) along with authorization from the sector for data extraction. Therefore, this research complies with Resolution No. 466/2012 of the National Health Council (CNS), which regulates research involving human subjects.

The target population consisted of individuals diagnosed with HIV/AIDS who were treated at a referral hospital specializing in infectious diseases. and illnesses dermatological Goiás. Everyone was notified by System of Information Aggravations of Notification (SINAN) during the period from 01/01/2018 to 31/12/2022. Data collection was carried out through research in secondary databases obtained from SINAN. The variables of interest for the study were selected from the database, organized in an Excel spreadsheet, and subsequently analyzed. Data processing and analysis were performed by selecting the variables from interest to the study, using the tabulator of TabWin data. Charts and tables were built for the elucidation of the results.

Adult individuals of both sexes with a positive HIV diagnosis were included, and sociodemographic variables (age, sex, race, education level, municipality of residence) and clinical variables (opportunistic diseases, lymphocyte count) were analyzed. and evolution). Children, HIV Sero discordant patients, and pregnant women were excluded.

Given the study design, the risks were minimal. However, there was a possibility of stigmatization or disclosure of information. In order to eliminate this risk, the researchers committed to not sharing any data with people not involved in the research team. Regarding the risk of breach of anonymity, even unintentional, due to loss or misplacement of data... data, to the information transcripts no they were registered with identification of people what the sample for this study comprised the individuals who made up this sample.

Sample characterization was performed using absolute and relative frequencies. Missing or blank data were not presented in the tables. Frequencies were calculated based on the number of participants who responded to each item. Additionally, logistic regression was performed to verify the association between cachexia and mortality in a subsample. of 100 patients were randomly selected. A p-value < 0.05 was considered statistically significant.

Results

Table 1: Features Sociodemographic of Cases Notified of HIV/AIDS Node State of Goiás in Period of 2018 the 2022 (n=3097)

Variables	n	%
Sex		
Masculine	2202	71.0
Feminine	895	29.0
Age		
18-29	1224	39.5
1224	1745	56.3
30-59	128	4.2
60 years or more		
Race		
White	464	15.4
Black	191	6.3
Yellow	33	1.1
Brown	2354	77.2
Education		
Teaching		
complete fundamental	198	9.6
Teaching		
incomplete elementary education	586	28.4
Teaching average full	805	39.0
Teaching average incomplete	205	9.9
Teaching superior full	61	2.9
Teaching superior incomplete	170	8.2
Illiterate	43	2.0

Source

Prepared by the authors with data of Core Hospital of Surveillance Epidemiological (NHVE) of HDT. To 205 individuals no there was registration. No there was individual's indigenous people.

The sociodemographic characterization of the studied population is described in Table 1. A total of 3,097 individuals notified for HIV in the state of Goiás were analyzed. A predominance of males was observed (n = 2202; 71.1%), while females represented 28.9% (n = 895) of the registered cases.

Regarding age range, the majority of participants were adults aged 30 to 59 years (n = 1,745; 56.3%), followed by young adults (n = 1,223; 39.5%) and older individuals, aged 60 years or more (n = 124; 4%). In terms of race/color, a higher proportion of people self-identified as mixed-race (n = 2,354; 76%), followed by white individuals (n = 442; 14.6%). black (n = 191; 6.3%) and yellow (n = 33; 1%).

Regarding educational level, complete secondary education predominated (n = 805; 39%). Among the other levels, the following stand out. incomplete primary education (n = 586; 28.4%), complete primary education (n = 198; 9.6%), incomplete secondary education (n = 205; 9.9%) and incomplete higher education (n = 170; 8.2%). A low proportion of individuals with complete higher education was also observed (n = 61; 2.9%). The vast majority of participants resided in the state of Goiás itself (n = 3,081; 99.5%).

Table 2: Prevalence of Infections Opportunists in PVHA, Node State of Goiás During the Period of 2018 the 2022 (n=3166)

Variables	n	%
Sex		
Sarcoma of Kaposi	65	2.1
Tuberculosis widespread	63	2.1
Candidiasis Oral	378	12.3
Herpes Zoster	86	86
Candidiasis (lung)	4	0.1
Cytomegalovirus	135	4.4
Cryptococcosis	89	2.9
Cryptosporidiosis	3	0,1
Histoplasmosis	105	3,4
Isosporidiosis	3	0,1
Herpes simples	18	0,6
Leucoencefalopatia	3	0,1
Micobacteriose Disseminada	4	0,1
Pneumonia por <i>Pneumocystis carinii</i>	171	5,6
Toxoplasmose Cerebral	202	6,6

Source

Prepared by the authors with data of NHVE of HDT. To 205 individuals no there was record

Notice: the value of n refers to to the number total of infections opportunists registered, being able to the same individual to present more than one event

Table 2 presents the prevalence of opportunistic infections among people living with HIV/AIDS (PLWHA) in the state of Goiás, during the period of 2018. in 2022. A larger [observation] was observed. occurrence of oral candidiasis (n = 378; 12.3%) and cerebral toxoplasmosis (n = 202; 6.6%), identified as the most prevalent infections in the studied group. In smaller proportions, cases of *Pneumocystis carinii pneumonia* (n = 171; 5.6%), cytomegalovirus (n = 135; 4.4%), histoplasmosis (n = 105; 3.4%), and cryptococcosis (n = 89; 2.9%) were observed. herpes zoster (n = 86; 2.8%) sarcoma of Kaposi (n = 65; 2.1%) and tuberculosis widespread (n = 63; 2.1%). To the Other infections showed low prevalence, including herpes simplex (n = 18; 0.6%), pulmonary candidiasis (n = 4; 0.1%), and disseminated mycobacteriosis. (n = 4; 0.1%) cryptosporidiosis (n = 3; 0.1%) isosporidiosis (n = 3; 0.1%) and leukoencephalopathy (n = 3; 0.1%).

Table 3: Features Clinics of Cases Notified of HIV/AIDS Node State of Goiás During the Period of 2018 the 2022 (n=3097)

Variables	n	%
Count of CD4+ T lymphocytes < 350		
Yes	1724	56.2
No	1346	43.8
Cachexia		
Yes	1103	35.9
No	1972	64.1
Lymphadenopathy		
Yes	585	19.1
No	2482	80.9
Evolution		
Alive	2715	87.7
Death put AIDS without cachexia		
	369	11.9
Death put others causes	13	0.4

Source

Prepared by the authors with data of NHVE of HDT. To 205 individuals no there was record.

Table 3 presents the clinical characteristics of the 3,097 reported cases of HIV/AIDS in the state of Goiás, from 2018 to 2022. It was observed that 56.2% (n = 1,724) of individuals had a CD4+ T lymphocyte count lower than 350 cells/mm³. Cachexia was identified in 35.9% (n = 1,103) of cases, while 64.1% (n = 1,972) did not present this condition. Lymphadenopathy was observed in 19.1% (n = 585) of individuals.

Regarding clinical evolution, most participants were alive at the time of notification (87.7%; n = 2,715). Among the deaths recorded, 11.9% (n = 369) occurred due to AIDS without a record of cachexia and 0.4% (n = 13) by other causes. Of the total reported cases, 1,103 individuals presented with AIDS associated with cachexia, the characteristics of which are detailed in Table 4.

Table 4: Prevalence of Deaths Put AIDS with Cachexia and CD4 < 350, Served in Unit of Reference in Goiás, Node Period of 2018 in 2022 (n=1103)

Variables	n	%
Evolution		
Alive	870	78.9
Death because of AIDS	230	20.9
Death put others causes	3	0.3
Count of CD4+ T lymphocytes < 350		
Yes	872	79.0
No	231	21.0

Source

Prepared by the authors with data of NHVE of HDT. To 205 individuals no there was record

Table 4 shows that, among individuals with AIDS and cachexia (n = 1,103), 78.9% (n = 870) were alive, while 21.2% died, with 20.9% (n = 230) due to AIDS and 0.3% (n = 3) due to other causes. The majority of individuals with cachexia had a CD4+ T lymphocyte count lower than 350 cells/mm³ (79.0%; n = 872),

indicating a clinical profile of greater immunosuppression in this subgroup.

Table 5: Regression Logistics to Prediction of Mortality in Patients with Cachexia (n=100)

Variables	OR (95% CI)	P
Cachexia	1.01 (1.004-1.023)	0.007

Source

Prepared by the authors with data of NHVE of HDT.

Caption

OR: Odds Ratio

IC: Interval of Trust

P: Value

Discussion

This study analyzed the relationship between cachexia and mortality in people living with HIV/AIDS (PLWHA). Cachexia is a multifactorial and systemic condition that manifests through weight loss, increased lipolysis, decreased muscle mass, and loss of appetite. Persistent nausea and intense fatigue. These manifestations associated with HIV/AIDS infection involve sociodemographic and clinical factors, as well as the presence of opportunistic diseases, which considerably impact quality of life and survival, in addition to increasing morbidity and mortality rates [12].

The sample analyzed was mostly composed of men. This information is consistent with national data obtained from the HIV/AIDS Epidemiological Bulletin, in which cases were predominantly reported in men: 345,069 (70.5%). Additional international research confirms the aforementioned information and also reveals that 68% of HIV-related deaths occurred in men [13]. This highlights the relevance of public policies focused on men's health, through actions that seek to sensitize and raise awareness among this group, which throughout history has demonstrated an inferior understanding of the importance of preventive and health care services [14].

The age group with the highest prevalence of HIV/AIDS diagnosis was adults between 30 and 59 years old. This information is consistent with... data presented and, of agreement with Teixeira and collaborators (2022), AIDS is commonly connected the individuals of age reproductive, one since the main mode contagion occurs put quite of relations unprotected sex. It is also noted the presence of people belonging to the age group above 40 years and the study indicates that they probably received the diagnosis late [15].

Regarding the race/color of individuals affected by HIV/AIDS, the highest number of diagnoses were observed in mixed-race individuals, representing 77.2% from the sample. Of agreement with data of DATASUS, you index of mortality in that group they are increasing in white people, while decreasing in black people, with the highest rates found in black people, a finding consistent with the results of the present study [16].

Regarding education level, most had completed high school. More educated individuals start their sexual lives later and use condoms more often. Those with less education start their sexual lives earlier, with more partners and without protection, increasing the risk of HIV transmission and other Sexually Transmitted Infections (STIs) [16]. Furthermore, it is noteworthy that a high level of education is related to good adherence to treatment, since

other studies have pointed to a correlation between high education and access to information [17].

The higher prevalence of lymphadenopathy, characterized by enlarged lymph nodes in people living with HIV/AIDS, is widely documented as a frequent clinical manifestation, especially in the early stages of infection, where it can reach rates of up to 70% to 80%. Studies indicate that generalized lymphadenopathy persists in untreated patients due to exacerbated immune activation in response to high viral load and microbial translocation. With the initiation of antiretroviral therapy (ART), this condition usually regresses, although factors such as opportunistic infections, lymphomas, and unequal access to treatment may also contribute to maintain high prevalence in certain populations. Careful clinical evaluation and methods of Images are recommended to differentiate between benign and malignant causes of lymphadenopathy.

Both populations without and with the presence of cachexia, presented with CD4+ T lymphocyte counts <350 cells/mm³. This clinical parameter is associated with serious opportunistic infections and may be predictive of a worse prognosis and risk of death. Furthermore, there are prognostic implications in the evolution of HIV infection, as it is generally agreed that it involves immune deficiency associated with certain clinical parameters.

In present search, it was noticed what there was significant correlation between the presence of cachexia and bigger mortality in PVHA, as well as the study that analyzed 237,435 deaths from HIV/AIDS in Brazil between 2000 and 2018. Mortality rates from HIV/AIDS-defining illnesses decreased from 7.4 deaths per 100,000 inhabitants in 2000 to 4.4 in 2018. In contrast, mortality rates from non-defining illnesses, which include conditions such as cachexia, increased from 0.4 to 0.8 deaths per 100,000 inhabitants in the same period. This data indicates a correlation between the presence of cachexia and the bigger mortality in people living with HIV/AIDS, highlighting the need for specific interventions to manage this condition.

A study published in 2024 in BMC Infectious Diseases investigated the relationship between weight loss and mortality in people living with HIV. The research, a systematic review and meta-analysis, included 15 studies with a total of 4,789 participants. The results showed that weight loss of 10% or more of body weight was associated with a 2.5-fold increase in mortality compared to individuals who maintained their weight. Furthermore, the analysis revealed that early weight loss... before of start the treatment antiretroviral, was correlated the one increase of 1.8 times node risk of death. Those Data reinforces the importance of monitoring weight loss and implementing appropriate nutritional interventions to reduce it. mortality among people living with HIV.

Conclusion

This study shows that cachexia is associated with higher proportional mortality in people living with HIV/AIDS (PLWHA), although the vast majority of deaths occurred in individuals without cachexia. These findings reinforce the need for integrated clinical management strategies that consider both the control of HIV infection and associated conditions that compromise nutritional status and quality of life. The predominance of men, adults of reproductive age, mixed-race individuals, and those with low levels of education highlights the importance of public policies aimed at more vulnerable groups. The low CD4+ T lymphocyte count observed in the studied population highlights the urgency of interventions to reduce the immune deficit and improve the

prognosis of these individuals. Although a significant association was identified between Regarding cachexia and mortality, further studies are needed to confirm this relationship and deepen the understanding of the factors that contribute to the unfavorable clinical outcome.

Access Open

This article is licensed under Creative Commons use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give proper credit to the If you are the original author(s) and the source, please provide a link to the Creative Commons License. Commons and indicate if any changes were made. For more information, visit creativecommons.org/licenses/by/4.0/.

References

1. Santos DM, Manochio MG, Magrin TF (2024) State nutritional and image bodily of patients HIV positive to HIV with Ten <https://www.aids.gov.br/pt-br/pub/2019/boletim-epidemiologico-de-hiv-aids-2019>.
2. Mocroft A, Ingle SM, May MT, Gill MJ, Mugavero MJ, et al. (2014) Impact of risk factors for specific causes of death in the first and subsequent years of antiretroviral therapy among HIV- infected patients. *Clin Infect Dis* 59: 287-297.
3. Ankur Gupta, Robin Wood, Richard Kaplan, Linda-Gail Bekker, Stephen D Lawn (2012) Tuberculosis incidence rates during 8 years of follow-up of an antiretroviral treatment cohort in South Africa: comparison with rates in the community. *PLoS One* 7: e34156.
4. Fearon K, Strasser F, Anker SD, Bosaeus I, Bruera E, et al. (2011) Definition and lassification of cancer cachexia: an international consensus. *Lancet Oncol* 12: 489-495.
5. Evans WJ, Morley JE, Argiles J, Bales C, Baracos V, et al. (2008) Cachexia: A New Definition. *Clin Nutr* 27: 793-799.
6. Holy AH, Pine CE (2007) Factors what influence the loss of weight in AIDS patients admitted to a university hospital [dissertation]. São Paulo: Federal University of São Paulo.
7. Nunes JL (2023) Impact of cachexia on mortality among people living with HIV/AIDS: a cohort study. *J Clin Nutr* 22: 450-458.
8. Villarinho MV, Padilha MI, Berardinelli LMM, Borentein MS, Meireller BHS, et al. (2013) Policies public of health face the Epidemic of AIDS and the assistance to people with the disease. *Rev Bras Enferm* 66: 271-277.
9. Breton G, Duval X, Estellat C, Paoletti X, Bonnet D, et al. (2004) Determinants of immune reconstitution inflammatory syndrome in HIV type 1-infected patients with tuberculosis after initiation of antiretroviral therapy. *Clin Infect Dis* 39: 1709-1712.
10. (2023) Ministry from the Health (BR), Secretary of Surveillance in Health and Environment, Department of Strategic Coordination of Surveillance in Health and Environment. Guide of surveillance in Health https://subpav.org/aps/uploads/publico/repositorio/guia_vigilancia_saude_v2_6ed.pdf.
11. Gonçalves LFR, Montanha RM, Rodrigues R, Kerbaux G, Furuya RK, et al. (2021) Characterization epidemiological and clinic of HIV/AIDS: associations with the mortality. *Rev Eletr Acervo Saúde* 13: e5293.
12. Silva MEA, Silva NACF, Soares MH (2023) Assistance of nursing Men in primary care: a review integrative. *J Res Health Sci* 7: 1-15.
13. Santos PR, Silva BAD, Olive TF (2022) Influence from the schooling in sexual behavior and condom use among

- adolescents. Rev Bras Health Public 27: 45-58.
14. Foresto JS, Melo ES, Costa CRB, Antonini M, Gir E, et al. (2017) Membership the therapy antiretroviral of people living with HIV/AIDS in one municipality of interior Paulista. Rev Gaúcha Enferm 38: e63158.
15. Oliveira FBM, Moura MEB, Araújo TME, Andrade EMLR (2015) Quality of life and associated factors in people living with HIV/AIDS. Acta Paul Enferm 28: 510-516.
16. Lamb SA, Lopes TCP, Boechat AL, Gonçalves RL (2024) Loss of Weight and mortality in people living with HIV: a systematic review and meta-analysis. BMC Infect Dis 24: 34
17. Teixeira LG, Chagas BLF, Alves FS, Padron GMS, Ribeiro JC, et al. (2022) THE profile epidemiological from the AIDS node Brazil. Brazil J Health See 5: 1980-1992.