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Article

Low adherence to HIV post-exposure prophylaxis in a small city of São Paulo state between 2011 and 2020

Baixa adesão à profilaxia pós-exposição ao HIV em um município do interior de São Paulo entre 2011 e 2020

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ABSTRACT: Introduction: Acquired Immunodeficiency Syndrome (AIDS) is a disease caused by the Human Immunodeficiency Virus (HIV), which is acquired through sexual, bloodborne, and vertical transmission via contaminated sharp objects or contact with bodily fluids. The infection can remain asymptomatic for years, with initial symptoms being non-specific. The highest prevalence occurs among men who have sex with men, aged 40 to 49 (44.4%), and 50 or older (52.8%) in the heterosexual category.The main category in women is heterosexual (over 80%). Vertical transmission is the primary route of infection among those under 13, while it is sexual among older individuals. The majority have completed secondary education and identify as mixed-race. Treatment for HIV infection is provided through antiretroviral drugs. Post-Exposure Prophylaxis (PEP) is recommended within 72 hours of HIV exposure, and involves the use of medications to reduce the risk of infection. Objectives: To evaluate PEP adherence in the municipality of Araraquara, SP, Brazil, according to gender, age, education, marital status, race, and occupation, aiming to promote greater awareness and adherence to HIV preventive methods. Methodology: This is a descriptive cross-sectional study. Data from patients who initiated PEP at the Specialized Care Service (*Serviço de Assistência Especializada - SAE*) of the Araraquara Special Health Service (*Serviço Especial de Saúde de Araraquara - SESA*) were collected from the Juarez System's public health information and management database. The Microsoft Power BI software program was used for data analysis. Following this step, sexual education was promoted through pamphlets and informative posters at municipal health units, focusing on challenges identified through collected information. Results: The prevalence of individuals adhering to PEP (9.2%) was higher among males aged 30 to 40, of white race, self-employed, and with completed higher education. Conclusion: The majority of individuals seeking PEP did not adhere to this preventive method, highlighting the need to raise awareness among the target population about the existence of both pre and post-sexual exposure preventive methods, and the importance of completing medication and follow-up to prevent HIV transmission.

KEY WORDS: HIV; Pre-exposure prophylaxis; post-exposure prophylaxis; Adherence; Treatment; Antiretroviral; Prevention.

RESUMO: Introdução: A Síndrome da Imunodeficiência Adquirida (aids) é uma doença que tem como agente etiológico o vírus da imunodeficiência humana (HIV), adquirido por via sexual, sanguínea e vertical, por meio de objetos perfurocortantes contaminados ou pelo contato com fluidos corporais. A infecção pode permanecer assintomática por anos, e a sintomatologia inicial pode ser inespecífica. A maior prevalência ocorre em homens que fazem sexo com homens, na faixa de 40 a 49 anos (44,4%), e 50 anos ou mais (52,8%) na categoria heterossexual. Nas mulheres, a principal categoria é a heterossexual (mais de 80%). Nos menores de 13 anos, a principal via de infecção é a vertical, e nos maiores, a sexual. A maior parte possui ensino médico completo e se declara como pardo. O tratamento da infecção pelo HIV é feito com fármacos antirretrovirais. A Profilaxia Pós-Exposição (PEP), indicada até 72 horas após a exposição ao HIV, consiste no uso de medicamentos para reduzir o risco de adquirir a infecção. Objetivos: Avaliar a adesão à PEP no município de Araraquara, de acordo com sexo, idade, escolaridade, estado civil, raça e profissão, a fim de promover maior conhecimento e maior adesão aos métodos preventivos ao HIV. Metodologia: Estudo transversal descritivo. Os dados dos pacientes que iniciaram a PEP no Serviço de Assistência Especializada (SAE), do Serviço Especial de Saúde de Araraquara (SESA), foram coletados do banco de dados do Sistema de Informação e Gestão em Saúde Pública (Sistema Juarez). Para análise dos dados, foi utilizado o programa Microsoft Power BI. Após essa etapa, houve promoção de educação sexual, por meio de panfletos e cartazes informativos, nas unidades de saúde do município, com foco nos desafios identificados por meio das informações coletadas. Resultados: A prevalência dos indivíduos que aderiram à PEP (9,2%) foi maior nos indivíduos do sexo masculino, entre 30 e 40 anos, raça branca, autônomos e com ensino superior completo. Conclusão: A maioria dos indivíduos que procuram pela PEP não aderiram a esse método de prevenção, logo, é necessário conscientizar a população alvo sobre a existência de métodos preventivos pré e pós-exposição sexual e a importância de finalizar a medicação e o seguimento, a fim de evitar a contaminação pelo HIV.

PALAVRAS-CHAVE: HIV; Profilaxia pré-exposição; Profilaxia pós-exposição; Adesão; Tratamento; Antirretroviral; Prevenção.

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INTRODUCTION

HIV/Aids

The etiological agent of AIDS (Acquired Immune Deficiency Syndrome) is the HIV virus (Human Immunodeficiency Virus), a retrovirus of the Lentivirinae subfamily, enveloped with positive-strand RNA. Because it is enveloped, it can be easily inactivated and transmitted through body fluids[1,2].

HIV has tropism for cells that present CD4 receptors, such as lymphocytes, macrophages and dendritic cells. Infection begins when the virus binds to the CD4 receptors of host cells through the gp120 envelope protein, with subsequent binding to the CCR5 receptors.

Thus, the virus is capable of promoting a reduction in the number of CD4+ T lymphocytes, leading the organism to chronic and progressive immunological dysfunction. This weakened immune system makes the individual more susceptible to opportunistic infections, as well as some types of cancer[1].

Patients with HIV infection may remain asymptomatic for years, or present non-specific symptoms. Virus infection is divided into four clinical periods[1]:

1) Initial phase: there is a sudden drop in the CD4+ T lymphocyte count and high levels of plasma viral load, characterizing acute retroviral syndrome.

2) Asymptomatic Phase or Clinical Latency Period: the number of CD4+ T lymphocytes increases, but in most cases it does not equal pre-infection levels.

3) Early symptomatic phase: the first clinical manifestations occur (constitutional symptoms, such as low-grade fever, weight loss, night sweats). These manifestations can occur in immunocompetent patients, but are more frequent in those in the initial phase of immunodeficiency. This stage presents a moderate infection risk with opportunistic diseases, such as oral candidiasis, herpes zoster, hairy leukoplakia and bacterial infections (pneumonia, sinusitis and bronchitis)[3].

4) Symptomatic phase: CD4+ T lymphocyte count below 200 cells/mm³ and emergence of opportunistic diseases, which characterizes AIDS. The diseases that commonly appear at this stage are: pneumocystosis, neurotoxoplasmosis, atypical or disseminated pulmonary tuberculosis, cryptococcal meningitis and cytomegalovirus retinitis. It may also be associated with the development of neoplasms, the most common of which are Kaposi's sarcoma, non-Hodgkin's lymphoma and cervical cancer in young women.[3]

EPIDEMIOLOGY

The first case of AIDS in Brazil was reported in 1980[4]. Since then, AIDS has been associated with high rates of morbidity and mortality in the country. There was a drop in the mortality rate of 25.5%, from 5.5 to 4.1 deaths per 100 thousand inhabitants between 2012 and 2022. It is believed that this drop occurred because HIV infection began to be considered a chronic condition with treatment improvements which became more powerful, associated with fewer adverse effects, better adherence, resulting in better quality and greater life expectancy[5].

Based on data obtained through systematization of compulsory notifications, it was observed that the prevalence of HIV infection is lower in the general population when compared to "key populations", which consist of population groups marked by a history of stigmatization and social exclusion, with difficulty accessing prevention, testing and treatment. This adversity occurs due to the social and/or work situation, extreme social vulnerability such as violence, criminalization, discrimination, racism, poverty, machismo and sexism[6].

The groups which fall into the "key populations" are sex workers, people who use alcohol and other drugs, gays and other men who have sex with men, trans people, people deprived of liberty and priority populations (black population, young people, homeless and indigenous)[6].

According to data from the continuous care manual for people living with HIV/AIDS (PLWHA), the prevalence in the general population is 0.4%; while in other groups, its prevalence is found to be: 18.4% in gays and other men who have sex with men; 16.9% in trans women; 36.7% in transvestites; 5.3% in sex workers; 5% in people who use alcohol and other drugs; 31 PLWHA for every thousand women among women deprived of liberty; 52.9% in the black population; 36.2 and 50.9 cases per 100 thousand inhabitants in the young population aged 20 to 24 and 25 to 29 years, respectively; and 4.9% in the homeless population. The results regarding the indigenous population are unfavorable for adherence, abandonment, retention and punctual and sustained viral suppression in relation to yellow or white PLWHA, and it was not possible to obtain data for people deprived of liberty, as the National Penitentiary Information Survey of Women's and Men's Penitentiary Systems do not present information about HIV/aids[6].

The highest prevalence (22.2%) of cases in 2023 regarding age group and sex occurred in men aged between 25 and 29 years. Regarding the infection route, the majority of cases in children under 13 years of age occurred through vertical transmission, while the main form was sexual in those over 13 years of age. When informed, the majority had completed high school (37.1%), while the skin color/race which prevailed was brown (50.2%). Regarding exposure in 2022, it was observed in men aged 13 to 19 years (62.7%), 20 to 29 years (62%) and 30 to 39 (43.4%); the highest prevalence occurred in men who have sex with men, and between 40 and 49 years old (44.4%) and 50 years old or more (52.8%) in the heterosexual category. The main category for women is heterosexual (more than 80%)[5].

TRANSMISSION AND RISK FACTORS

The main form of HIV transmission is through unprotected sexual intercourse: anal, vaginal or oral.[7] Unprotected anal penetration confers a greater chance of HIV infection than vaginal penetration. However, the passive partner has a greater chance of contracting the virus in both cases. Furthermore, having a history of STIs increases the risk of HIV infection, as they lead to inflammation and a greater presence of defense cells

such as macrophages, which have receptors for HIV, such as CD4 and CCR5 receptors, facilitating HIV infection.

Despite the greater risk of infection among individuals with multiple sexual partners and cases of STIs, people with a fixed partner, without perceived risk, may also be vulnerable to infection, especially in situations of sexual intercourse and penetrative practices without adequate use of condoms[8].

The infection can also be transmitted by sharing syringes, needles and objects between users of psychoactive substances, occupational exposure, blood transfusion, accidents involving semen, vaginal fluids, serous fluids, cerebrospinal fluid and joint fluid[9]. The risk of HIV transmission has determining factors which include viral load, whether the mucosa is intact or not, and the existence of trauma or injuries, such as in cases of sexual violence. There is a greater risk of infection in situations of occupational exposure when there is a high viral load, large volume of blood or exposure related to a deep wound[10]. Furthermore, maternal-fetal/vertical transmission may occur during pregnancy, childbirth or breastfeeding, with the peripartum period being the highest risk[11].

PREVENTION AND TREATMENT

The latex condom was created in 1880 and disseminated from the 1930s onwards, mainly in the United States. It is among the most effective tools for preventing sexually transmitted infections (STIs) and unplanned pregnancies. However, some obstacles related to this method must be considered, such as difficulty in adherence, the risk of rupture or loss during sexual intercourse, lack of knowledge of correct use due to lack of sexual education, in addition to variation in quality and differences in manufacturing technology[10]. Therefore, even with the existence of condoms, sexually transmitted infections can spread in society.

Antiretroviral medications were developed with advances in the understanding of HIV/AIDS that reduce the viral load and consequently increase CD4 T cells, reducing morbidity and mortality in people living with HIV/AIDS (PLWHA). Antiretroviral therapy (ART) is available free of charge through the Brazilian Unified Health System (*Sistema Único de Saúde do Brasil – SUS*)[12].

In view of this, the use of ART also represents a powerful intervention for preventing HIV transmission, as it is associated with lower concentrations of the virus in genital secretions, which can significantly reduce the sexual transmission of the disease[1,3].

Thus, a person with HIV, without any other STI, who is following treatment correctly and who has a suppressed viral load for at least 6 months, has a minimal chance of transmitting the disease sexually (undetectable is considered to be untransmissible). However, it is important to emphasize that condom use continues to be recommended to prevent other STIs[3].

As forms of HIV prevention, combined prevention is considered: treatment of people living with HIV/AIDS (PLWHA), counseling for serodifferent couples, guidance on the use of condoms, the offer of antiretrovirals in post-exposure prophylaxis (PEP) and sexual pre-exposure (PrEP) for populations most vulnerable to HIV[1,3]. Therefore, the regular use of condoms, combined with new technologies, is of great importance for preventing HIV infection[13].

Image 1 - Combined prevention mandala.

Source: MINISTÉRIO DA SAÚDE (2017, p.44)[3]

Legend (top left to right, outside to inside): Legal milestones and other structural aspects; Regularly test for HIV, other STIs and HV; Post-Exposure Prophylaxis (PEP); Pre-Exposure Prophylaxis (PrEP); Prevent Vertical Transmission; Immunization for HBV and HPV; Harm reduction; Diagnose and treat people with STIs and HV; Use male, female condoms and lubricant gel; Treat all people living with HIV/Aids (PLWHA); Key and priority populations; Combined prevention.

PrEP

Sexual pre-exposure prophylaxis (known as PrEP) is characterized by the daily use or on demand of the combination of two antiretrovirals, Tenofovir and Emtricitabine (TDF/FTC), in a period prior to potentially risky sexual practices[12]. In people without a diagnosis prior to HIV infection, this new technology demonstrates great epidemiological importance as it is promising in controlling HIV infection, and since there is still no effective vaccine available in the world[13].

Despite the focus on people with greater vulnerability such as men who have sex with men, transsexuals, transvestites, serodifferent partners, sex workers and users of psychoactive substances, all people aged 15 and over with body weight equal to or above 35 kg and sexually active who perceive contexts of increased risk of infection can use PrEP[14].

Several indicators are considered to assess risk contexts, such as: recurrence of anal or vaginal sexual practices with penetration and without the use of condoms; frequency of sexual relations with casual partners; quantity and diversity of sexual partnerships; history of STI episodes; repeated search for post-exposure prophylaxis (PEP); contexts of sexual relations in exchange for money, housing, drugs, etc.; and sexual practice under the influence of psychoactive substances[14].

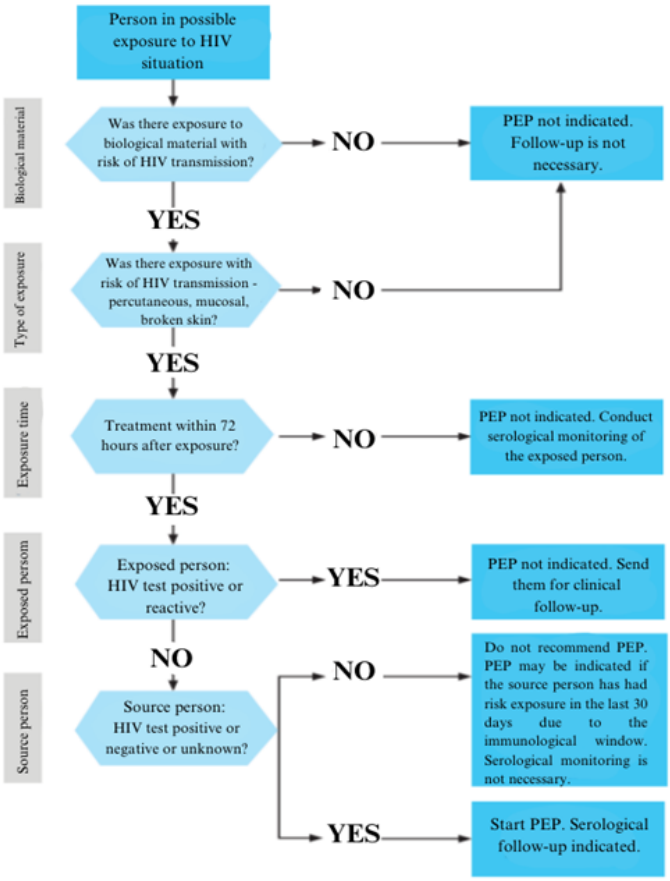
Therefore, for people who meet the indication criteria, it is recommended to start prophylaxis with a loading dose of two TDF/FTC tablets on the first day of use, followed by one daily tablet on the remaining days[14].

PEP

PEP (post-sexual exposure prophylaxis) is a preventive method in the fight against HIV[15]. It has been available in the public health network in Brazil since 2010, and is indicated in cases of HIV exposure due to breakage or non-use of condoms during sexual intercourse, risky biological accidents, sexual violence, exposure to maternal HIV, among other forms of contact with the virus. The search for and adherence to PEP depends on the deconstruction of labels associated with HIV/AIDS, considering that many people with HIV are unaware of their diagnosis, as they relate this disease only to the most vulnerable groups[13]. PEP is offered in the public health network, in which the organization differentiates itself in different territories[8].

Access to PEP occurs in a 24-hour service network with assessment of the risk of exposure and performance of a rapid test to rule out HIV infection before starting medication[8]. When assessing the risk of contamination, it is considered whether the biological material is capable of promoting viral replication; whether the manner in which exposure occurred poses a risk for HIV transmission; if the search for care occurred within 72 hours after exposure, and if the exposed person tests negative for HIV[15]. Other STIs are also investigated, and the use of condoms and vaccination for hepatitis B is recommended for those susceptible[16].

Flowchart - Criteria for indicating PEP according to the exposure type.



Source: PCDT PEP (2021, p.29)

LEGEND (top-down, left-to-right): Person in possible exposure to HIV situation; Biological material; Was there exposure to biological material with risk of HIV transmission?; PEP not indicated. Follow-up is not necessary; Type of exposure; Was there exposure with risk of HIV transmission - percutaneous, mucosal, broken skin?; Exposure time; Care provided thin 72 hours after exposure?; PEP not indicated. Conduct serological monitoring of the exposed person; Exposed person; Exposed person: HIV test positive or reactive?; PEP not indicated. Send them for clinical follow-up; Source person; Source person: HIV test positive or reactive or unknown?; Do not recommend PEP. PEP may be indicated if the source person has had risk exposure in the last 30 days due to the immunological window. Serological monitoring is not necessary; Start PEP. Serological follow-up indicated.

PEP consists of a regimen of medications that must be taken for 28 uninterrupted days. It was previously composed of Tenofovir (300 mg), Lamivudine (300 mg) and Atazanavir/Ritonavir (300/100 mg)[15], however the latter two were later replaced by Dolutegravir 50MG per day, and is the currently used regimen[16].

Adherence to PEP is associated with adverse effects caused by the medications and the prolonged period of use (28 days) and follow-up (6 months), which leads many patients to interrupt treatment before discharge[11].

Adverse effects reported during the use of PEP are often

mild to moderate in intensity and self-limited, and symptomatic treatment may be prescribed. A patient may present headache, fatigue and gastrointestinal changes among the manifestations. Laboratory changes (creatinine, ALT, AST, amylase, blood glucose and blood count) may occur in some cases, however they are not routine, and are discreet and transient[16].

OBJECTIVES

The study objectives were to evaluate the degree of adherence of patients enrolled in the *SAE* of Araraquara who underwent Post-Exposure Prophylaxis (PEP) in the period from 2011 to 2020 in the municipality in order to know the profile according to demographic and socioeconomic variables such as: age, education level, marital status, sex, race and profession. Then in sequence to make the results of the study available to the general population and managers, and implement information and prevention actions in the city's health network and general population through leaflets, folders and other communication instruments.

MATERIALS AND METHODS

This is an observational, cross-sectional, descriptive study analyzing the *SESA* database through the Juarez System (Public Health Information and Management System) in the period between 2011 and 2020.

Data collection was carried out by the *SESA* professional team and passed on to the researchers through a spreadsheet without patient identification in order to preserve their privacy. The categorical variables studied were: gender, race, occupation and education level; and the quantitative variable of age. The descriptive analysis of categorical variables was performed using absolute (N) and relative (%) numbers. The quantitative variable was described by mean, median, standard deviation, minimum and maximum.

The Microsoft Power BI program was used for data analysis. This is Business Intelligence software which enables connecting to external databases such as Excel spreadsheets, SharePoint, MySQL databases and Web data through a programming language called DAX and the use of a Power Query; this in turn performs advanced data processing, making it possible to develop graphs and analyses.

After evaluating the epidemiological adherence pattern to the use of PEP, sexual education was promoted through pamphlets and informative posters focusing on the challenges presented based on the information collected in health units in the city of Araraquara.

It should be noted that the complete PEP follow-up schedule according to the Clinical Protocol and Therapeutic Guidelines (PCDT) of the Ministry of Health is 6 months, with prophylaxis being equivalent to 28 days and the remainder being follow-up for serology monitoring. Therefore, "treatment abandonment" was considered when the prophylaxis and/or follow-up time was not completed, and it was not possible to analyze how long the individual remained in follow-up before abandoning the process, since access to this variable was not obtained. Data such as "marital status" and "transgender" were not included in the analyzed database.

Patients who were within 6 months of the treatment protocol were considered "in follow-up", and "discharged" were those who completed the full protocol. Furthermore, users who were notified by March 30, 2020 and who were able to complete treatment by December of the same year were considered "under guidance".

This project was submitted and approved by the Ethics Committee of the University of Araraquara (UNIARA) via Plataforma Brasil and the ICF was waived.

RESULTS

A total of 489 PEP users were analyzed in the period between 2011 and 2020, based on data collection carried out by the *SESA* professional team through the Juarez System.

Regarding the adherence degree to PEP, 45 (9.2%) users completed the 28 days of medication and prophylaxis follow-up (considered as "discharged"), and 304 (62.2%) users did not complete PEP (considered as "abandonment"). It is noteworthy that it was not possible to analyze the evolution of 95 cases, since 21 (4.3%) were transferred to another municipality, to a private network or had the diagnosis discarded or modified, and 74 cases (15.1%) lacked data and/or information.

According to the sex of PEP users, 389 (80%) were men and 100 (20%) were women. The average age of users was 30.6 years old, 9.6% under 20 years old, 76.5% between 20 and 40 years old, 13.3% between 40 and 60 years old, and 0.6% over 60 years old. Regarding race, 350 (71.6%) were white, 99 (20.2%) mixed race, 36 (7.4%) black, 2 (0.4%) indigenous, 1 (0.2%) yellow, and 1 (0.2%) not informed.

For the occupation of those evaluated, 115 (23.5%) did not inform their profession. Among those who reported, 107 (21.9%) were self-employed, 104 (21.3%) students, 76 (15.6%) independent professionals, 67 (13.7%) public or private sector employees, 9 (1.8%) were sex workers, and 11 (2.2%) were unemployed. The relationship between users' occupation and the adherence degree to PEP can be seen in Table 1.

Table 1 - Relationship between occupation and adherence degree to treatment

Occupation	Total users	Discharge (%)	Abandon (%)	Follow-up (%)
Ignored	115	9.6	51.3	11.3
Autonomous	107	11.2	60.7	11.2
Student	104	8.71	69.2	7.7
Entreprenur	76	10.5	57.9	5.3
Public Sector Employee	9	1.8	88.9	0
Private Sector Employee	58	3.4	77.6	5.2
Sex Worker	9	1.8	55.6	44.4
Does not work	11	27.3	54.5	9.1
TOTAL	489	9.2	62.2	9.2

Regarding the education level, 26 users (5.31%) did not study or did not report their education, 68 (13.9%) had completed elementary school II/middle school, 212 (43.35%)

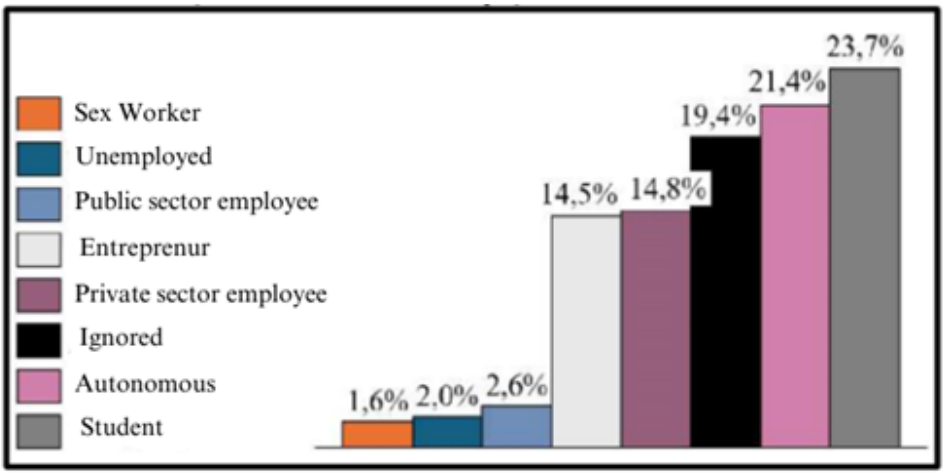
had completed secondary/high school education, and 183 (37.42%) higher education. Table 2 shows the relationship between education and adherence to PEP.

Table 2 - Relationship between education levels and adherence to treatment

Education level	Total users	Discharge (%)	Abandon (%)	Follow-up (%)
Ignored	26	15.4	34.6	0
Elementary II	68	11.8	63.2	4.4
Higher education	183	9.3	62.8	9.3
Secondary/High School	212	7.5	64.6	11.8
TOTAL	489	9.2	62.2	9.2

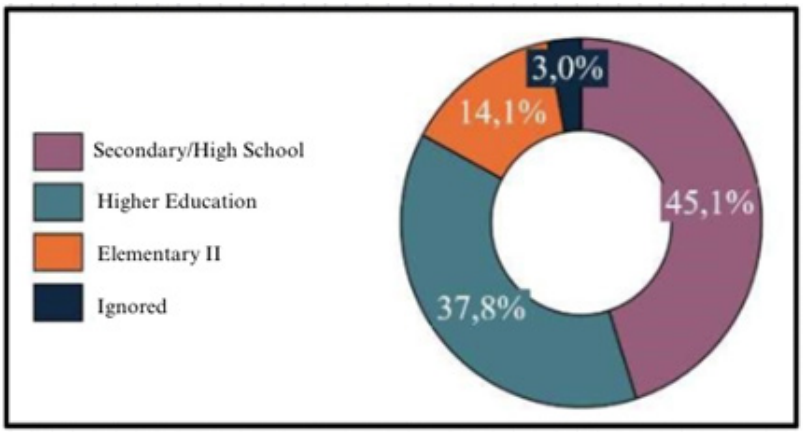
The majority of PEP users did not complete the protocol, totaling 62.16% (304 individuals) with poor adherence in the municipality of Araraquara. The highest prevalence of the users who abandoned PEP was male (79.6%), aged between 20 and 30 years (average age of 29.8 years), white (73.7%), students (23.7%), and people with completed secondary education (45.1%), as shown in Figures 1 and 2.

Figure 1 - Relationship between abandonment and occupation



Source: The Authors

Figure 2 - Relationship between abandonment and schooling

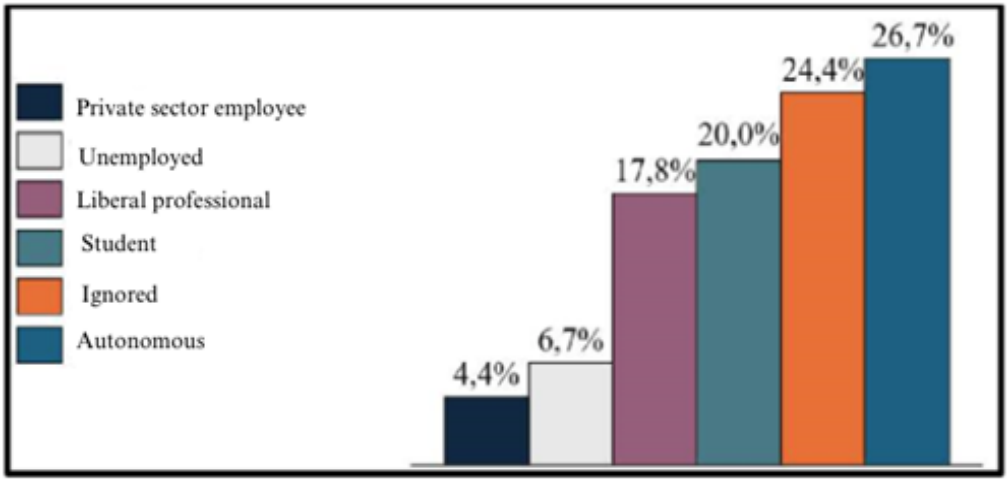


Source: The Authors

The following predominated among the users who continued PEP and were still being monitored at the time of data collection: male gender (75.6%), white race (64.4%), age group from 30 to 40 years old (age average of 30.2 years), occupation not reported (ignored) (28.9%), and complete secondary education (45.1%).

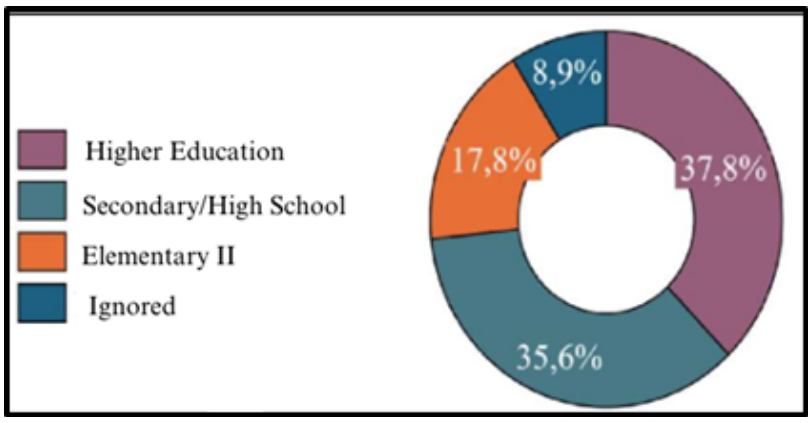
The profile in relation to PEP users who adhered to the treatment and were discharged by completing it is: male (73.3%), white race (71.1%), age range from 30 to 40 years (average age of 33.8 years old), self-employed (26.7%), and completed higher education (37.8%), as shown in Figures 3 and 4.

Figure 3 - Relationship between discharge and occupancy



Source: The Authors

Figure 4 - Relationship between discharge and schooling



Source: The Authors

DISCUSSION

The relationship between the epidemiological profile of patients living with HIV in Brazil and the profile of those abandoning PEP follow-up in Araraquara highlights relevant aspects about the gaps in HIV prevention and treatment. The response to HIV in the country has been marked by significant advances in access to antiretroviral therapy and the reduction of vertical transmission. However, challenges persist, especially related to treatment adherence and continuity, and preventive measures[3].

According to the Ministry of Health,[3] the epidemiological profile of HIV infection in Brazil mainly covers male people, between 25 and 29 years old, mixed race, with complete secondary/high school education. In comparing this with the data obtained in our study, the profile of PEP abandonment in the municipality of Araraquara prevails among male people, between 20 and 30 years old, white, with complete secondary education. It is noted that race was the only divergent variable between the literature and the results of our analysis, highlighting significant issues that are also reflected in the national HIV scenario.

The concentration of PEP abandonment in a specific demographic profile in Araraquara may be related to several factors: stigma, lack of information or access to adequate health services and perception of personal risk. The stigma associated with HIV can be particularly inhibiting for young, white men, who may not perceive themselves as part of an at-risk group, or may fear discrimination when seeking or continuing treatment.

In relation to the education level, on the one hand individuals with completed secondary education may have

better access to information about HIV and means of prevention. On the other hand, the existence of higher educational levels does not necessarily translate into preventive health behaviors or continuity of treatment, highlighting the need for health education campaigns that are culturally relevant and sensitive to the particularities of gender, age and race.

Thus, it is crucial to develop strategies focused on health education, reducing stigma, and improving access to health services in order to address PEP abandonment and improve HIV prevention in Brazil. In this context, the present study published pamphlets in the Basic Health Units (*Unidades Básicas de Saúde - UBS*) of Araraquara as a way of raising awareness of prevention methods. Furthermore, it is important to implement public policies that facilitate universal access to health services, especially for vulnerable populations at greater risk of abandoning treatment.

In relation to results on the dissemination of pamphlets, researchers have not monitored the possible impact of activity on the population to date. This analysis can be carried out as a new/continuing aspect of this study.

The limiting factors of the analysis were related to data collection, which was not accessed directly by the researchers, therefore depending on third parties responsible for updating the Juarez System. Furthermore, the data for starting prophylaxis are collected by professionals who may have been trained in different ways, so that the results may not be accurate to reality due to the possibility of failure during collection.

CONCLUSION

In view of the analysis carried out, it is noted that the majority of individuals who sought PEP did not adhere to prophylaxis, meaning that they did not complete it. On the other hand, the profile of people who abandoned PEP coincides with the profile of people most affected by HIV in Brazil, which raises an alert about the pressing need to develop projects to guarantee information to the target population about the importance of adherence to prophylaxis medications and continuing follow-up to reduce HIV contamination.

It should be added that HIV/AIDS is still considered a public health problem in Brazil, making it essential to inform the population about the disease and contribute to greater awareness about preventive methods before and after sexual exposure to HIV.

REFERENCES

1. Bergo PHF, et al. Profilaxia pré-exposição no controle do HIV: uma revisão de efetividade e potenciais complicações. Acta Médica. 2018;39(1):225-34.
2. Carvalho IS, Moura-Fé LA. Projeto de intervenção para ampliar o acesso da população a profilaxia pósexposição: PEP ao HIV em município do Piauí. 2019. 16 f. TCC (Graduação) - Universidade Federal do Piauí, Teresina, 2017. Doi: https://doi.org/10.1590/0102-311XPT099622
3. Ministério da Saúde (BR). Protocolo clínico e diretrizes terapêuticas para manejo da infecção pelo HIV em adultos. 2017. https://www.gov.br/conitec/pt-br/midias/protocolos/pcdt_manejo_hiv_adulto-1.pdf
4. Lacerda JS, Paulo RG, Aoyama EA, Rodrigues GM. Evolução medicamentosa do HIV no brasil desde o AZT até o coquetel disponibilizado pelo Sistema Único de Saúde. Rev Bras Interdisc Saúde. 2019; 1(4):83-91. Doi: https://doi.org/10.1590/0102-311XPT099622
5. Boletim Epidemiológico - HIV e Aids 2023 - Departamento de HIV/Aids, Tuberculose, Hepatites Virais e Infecções Sexualmente Transmissíveis. 2023. https://www.gov.br/aids/pt-br/central-deconteudo/boletins-epidemiologicos/2023/hiv-aids/boletim-epidemiologico-hiv-e-aids-2023.pdf/view
6. Manual do cuidado contínuo das pessoas vivendo com HIV/aids — Departamento de HIV/Aids, Tuberculose, Hepatites Virais e Infecções Sexualmente Transmissíveis [Internet]. www.gov.br. https://www.gov.br/aids/pt-br/central-de-conteudo/publicacoes/2023/manual-do-cuidado-continuo-das-pessoas-vivendo-com-hivaids-atual/view
7. Soares JP, Silva AC, Silva DM, Freire ME, Nogueira JA. Prevalência e fatores de risco para o HIV/AIDS em populações vulneráveis: uma revisão integrativa de literatura. Arq Catar Med. 2017;46(4):182-94. http://www.acm.org.br/acm/seer/index.php/arquivos/article/view/126.
8. Zucchi EM, Grangeiro A, Ferraz D, Pinehrio TF, Alencar T, Ferguson L, Estevam DL, Munhoz R. Da evidência à ação: desafios do Sistema Único de Saúde para ofertar a profilaxia préexposição sexual (PrEP) ao HIV às pessoas em maior vulnerabilidade. Cad Saúde Pública. 2018;34(7). Doi: https://doi.org/10.1590/0102-311X00206617
9. Alverca VO, Quixabeiro EL, Martins LMC. Efeitos adversos da profilaxia antirretroviral após exposição ocupacional ao HIV. Rev Bras Med Trab. 2018;16(2) 236-41. Doi: 10.5327/Z1679443520180085
10. Kuchenbecker R. Qual é o benefício das intervenções biomédicas e comportamentais na prevenção da transmissão do HIV?. Rev Bras Epidemiol. 2015;18(1):26-42. Doi: http://dx.doi.org/10.1590/1809-4503201500050004.
11. Murray PR, Rosenthal KS, Pfaller MA. Microbiologia Médica. Elsevier, 2010. p 960.
12. Filgueiras SL, Maksud I. Da política à prática da profilaxia pós-exposição sexual ao HIV no SUS: sobre risco, comportamentos e vulnerabilidades. Sexual Salud Soc. 2018;(30):282-304. http://www.scielo.br/scielo.php?script=sci_arttext&pid=S1984648720180003002 82&lng=pt&nrm=iso.
13. Fonner VA, Dalglish SL, Kennedy C, Baggaley R, O´Reilly KR, et al. Effectiveness and safety of oral HIV preexposure prophylaxis for all populations. Aids: London, England. 2016;12(30):1973-83. Doi:10.1097/QAD.0000000000001145
14. Ministério da Saúde. Protocolo Clínico e Diretrizes Terapêuticas para Profilaxia Pré-Exposição (PrEP) de Risco à Infecção pelo HIV [recurso eletrônico]. 2022. https://www.gov.br/aids/pt-br/central-de-conteudo/pcdts/2017/hiv-aids/pcdt-prep-versao-eletronica22_09_2022.pdf
15. Neto AB, Araújo AC, Doher MP, Haddad MA. Revisão sobre a

eficácia do preservativo em relação à proteção contra doenças sexualmente transmissíveis e gestação. Diagn Tratamento. 2009;14(3):123-5.

16. Ministério da Saúde. Protocolo Clínico e Diretrizes Terapêuticas para Profilaxia Pós-Exposição (PEP) de Risco à Infecção pelo HIV, IST e Hepatites Virais [recurso eletrônico]. 2021. https://www.gov.br/aids/pt-br/central-de-conteudo/pcdts/2021/hiv-aids/prot_clinico_diretrizes_terap_pep_-risco_infeccao_hiv_ist_hv_2021.pdf/view

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