Instituto Federal de Educação, Ciência e Tecnologia do Sul de Minas Gerais, Passos/MG, Brasil.
ISSN: 2359-1269
Revista Eixos Tech, v. 11, n. 5, 2024.
DOI:10.18406/2359-1269

**Juliano de Souza Caliari**
IFSULDEMINAS – Campus Passos
juliano.caliari@ifsuldeminas.edu.br

**Elucir Gir**
USP – Ribeirão Preto

**Renata Karina Reis**
USP – Ribeirão Preto

**Lílian Andreia Fleck Reinato**
USP – Ribeirão Preto

**Giselle Juliana de Jesus**
USP – Ribeirão Preto

**Maria Cristina Mendes de Almeida Cruz**
USP – Ribeirão Preto

**Natália Maria Vieira Pereira Caldeira**
USP – Ribeirão Preto

# Predictive factors associated with drug use by people living with HIV / AIDS

## Abstract

Drug use is a global public health problem, and in people living with HIV / AIDS, it weakens the immune system and is a risk factor for HIV transmission among drug users. To identify the predictive and associated factors with drug use by people living with HIV / AIDS. A cross - sectional and analytical study was carried out in the interior of Minas Gerais, Brazil, with 258 people in clinical follow - up, older than 18 years of age using antiretroviral therapy. The collection was performed through an individual interview guided by an instrument contemplating sociodemographic, affective-sexual, epidemiological, treatment, clinical, dependence on daily life activities and drug use. The data was organized in Microsoft Office Excel® 2010 spreadsheets and processed in IBM® SPSS 23.0. All ethical aspects have been contemplated. Of the participants, 32.4% were male, 29.0% were between 40 and 49 years old, 28.6% with up to 5 years of complete study, 23.3% mentioned individual income of up to one 27.7% reported sexual partners in the last 12 months and 20.2% reported having used male condoms in their relationships, 26.4% had no adverse effects with antiretrovirals, 20.1% had no history of Discontinuation of treatment, 26.1% denied hospitalizations for HIV complications, and 32.0% had no comorbidities. Factors associated with drug use was associated with income, religion practitioner, condom use, interruption of antiretroviral therapy and comorbidities.

**Keywords:** AIDS; HIV; Illicit drugs.

# Fatores preditores e associados ao uso de drogas por pessoas vivendo com HIV/aids


## Resumo

O uso de drogas é um problema de saúde pública mundial, e em pessoas vivendo com HIV/aids enfraquece o sistema imune e se constitui em fator de risco para a transmissão do HIV entre os usuários de drogas. Identificar os fatores preditores e associados ao uso de drogas por pessoas que vivem com HIV/aids. Estudo transversal, analítico, realizado no interior de Minas Gerais - Brasil, com 258 pessoas com HIV em seguimento clínico ambulatorial, maiores de 18 anos de idade que faziam uso de terapia antirretroviral. Foi realizada entrevista individual norteada por um instrumento contemplando variáveis sociodemográficas, afetivo-sexuais, epidemiológicas, tratamento, clínicas, dependência nas atividades de vida diária e uso de drogas. Os dados foram organizados em planilhas do Microsoft Office Excel® 2010 e processados no IBM® SPSS 23.0. Todos os aspectos éticos foram contemplados. Dos participantes**,** 32,4% eram do sexo masculino, 29,0% estavam na faixa etária de 40 a 49 anos, 28,6% com até 5 anos de estudo completos, 23,3% mencionam renda individual de até um salário mínimo/mês, 27,7% referiram parceria sexual nos últimos 12 meses e 20,2% relataram que sempre usavam preservativos masculinos em suas relações, 26,4% não tinham efeitos adversos com os antirretrovirais, 20,1% sem histórico de interrupção do tratamento, 26,1% negaram internações por complicações do HIV e 32,0% não apresentavam comorbidades. Os fatores associados ao uso de drogas foram a idade, a renda, a crença religiosa, o uso de preservativo masculino nos últimos 12 meses, a interrupção da terapia antirretroviral e a presença de comorbidades.


**Palavras-chave:** Aids, HIV e drogas ilícitas.

## Introduction

Acquired Immunodeficiency Syndrome (AIDS) is a major global public health problem due to the number of people infected with the human immunodeficiency virus (HIV), its mode of transmission, and the impact it has on society (1,2). It also contributes to the abuse or dependence on legal and illegal drugs, which can produce acute and chronic medical conditions that are difficult to resolve and can compromise functional independence and, therefore, the quality of life of individuals (3, 4, 5).

Legal drugs are understood to be those that are legalized, produced, and sold freely, and that are accepted by society, such as cigarettes and alcohol. Illicit drugs are those whose sale is prohibited in Brazil and are not socially accepted, such as cocaine, marijuana, crack, and heroin (6). According to the World Health Organization, in 2013, an estimated 246 million people worldwide between the ages

of 15 and 64 used some type of drug. Of these, 27 million are problematic users, with nearly 50% injecting drugs, and 14% of them living with HIV/AIDS (1,2).

From 2009 to 2013, the AIDS prevalence rate among drug users was 5.9% in Brazil. Drug use has been identified as the main factor in the emergence of new HIV cases in the country, similar to cases among gay men, men who have sex with men, transvestites, transsexuals, and sex workers (7).

Prolonged drug use represents a social and ethical problem (3). In addition to weakening the immune system, it is strongly linked to increased HIV infection or reinfection, as well as other sexually transmitted infections (4, 5), increased risk of hospitalizations, and increased death from general health complications (1, 2, 8).

For people living with HIV/AIDS (PLWHA), the use of licit and illicit drugs can interfere with the effects of antiretrovirals due to decreased viral suppression, increased drug resistance, and adverse effects of treatment (1, 2, 4).

However, despite the many negative impacts, drug use among PLWHA is high. It is estimated that 1.6 million PLWHA use some type of drug worldwide (1, 2), with alcohol and other drug abuse significantly higher in this population compared to the general population (7, 9).

Thus, given the problem and the fact that there is a gap in knowledge on this topic at the research site, the objective of this study was to identify the predictive factors for drug use by PLWHA in a region in the interior of the State of Minas Gerais, Brazil.

## Research Methodology

This is a cross-sectional, analytical study conducted at an outpatient clinic specialized in care for people living with HIV/AIDS within the state health network. The clinic serves as a referral center for 18 municipalities in the southwestern region of Minas Gerais, with 758 cases of people living with HIV/AIDS reported in the region by the end of 2015.

Participants were selected using a convenience sample. The inclusion criteria were: being 18 years of age or older; taking antiretroviral therapy (ART) for at least six months; undergoing regular outpatient clinical follow-up, collecting antiretroviral medication monthly and attending medical appointments every three months at the clinic; and having reported using any type of legal or illegal drug in the last 12 months. The exclusion criteria were: individuals in confinement, such as prisoners,

institutionalized individuals, and those living in halfway houses, treated at the outpatient clinic.

Of the 338 users registered with the service, 258 agreed to participate in the study. Data collection was conducted through individual interviews in a private room at the service itself, guided by a questionnaire covering the following variables: sociodemographic (gender, age, education, marital status, income, occupation, and religious belief); affective-sexual (sexual orientation, sexual partnership, type of partnership, and male condom use); treatment (adverse effects and discontinuation after treatment initiation); and clinical (CD4+ T lymphocyte count, viral load, and comorbidities); relating these to drug use in the last 12 months (yes/no).

Regarding drug use, participants were asked about the type and frequency of use, categorized as frequent when related to drug use one to six times per week and occasional when individuals went seven days or more without using any drug.

The database was formatted in a Microsoft Office Excel® (Windows 2010) spreadsheet. After double-entry and data validation, the spreadsheet was exported to the IBM® SPSS statistical analysis program, version 23.0.

Descriptive statistics with simple frequency were used for data analysis and sample characterization. The chi-square test was used to analyze the association between variables and drug use. A crude and adjusted logistic regression model was used to identify predictors of drug use, calculating the odds ratio (OR) as an estimator of association, with a significance level of 5%.

The project was approved by the Research Ethics Committee of the Passos Teaching and Research Foundation (FESP-MG) (CAAE 31107614.2.0000.5112), meeting the ethical requirements set forth in resolution 466/12 of the National Health Council.

## Results

Of the 258 participants, 74 (28.7%) reported using some type of drug in the last 12 months, 51 (19.7%) reported using only one type of drug, and 23 (9.0%) reported using two or more different drugs. Alcohol was the most frequently reported drug, followed by marijuana, cigarettes/tobacco, crack cocaine, snorted cocaine, and heroin.

According to the sociodemographic, affective-sexual, treatment, and clinical variables of participants with drug use (Table 1), it was found that among the sociodemographic variables, 47 (32.4%) were male; 27 (29.0%) were between 40 and 49 years old; 36 (28.6%) had completed up to five years of schooling; 41 (27.7%) reported being single; 38 (23.3%) earned up to one minimum wage per month; 59 (27.8%) reported having a paying job, and 46 (23.6%) practiced some religious belief.

Regarding the variables related to their emotional and sexual life, 56 (73.1%) reported being heterosexual; regarding their sexual life in the last 12 months, 41 (27.7%) reported having had a sexual partner; 36 (27.7%) had steady partners; and 18 (20.2%) reported always using male condoms in their relationships.

Regarding treatment and clinical variables, 52 (26.4%) reported no adverse effects; 42 (20.1%) reported never having stopped taking antiretroviral therapy (ART); 51 (25.9%) had a CD4+ T lymphocyte count greater than 350 cells/mm3; 47 (27.6%) had an undetectable viral load; 47 (26.1%) denied hospitalizations due to complications of HIV infection since diagnosis and 68 (32.0%) had no comorbidities.

There was a statistically significant association between sociodemographic variables and monthly income (p=0.010) and religious beliefs (p=0.002); between affective-sexual life and male condom use in the last 12 months (p=0.045); between treatment variables and discontinuation of antiretroviral therapy (p=0.002); and between clinical variables and the presence of comorbidities (p=0.008).

**Table 1:** Distribution of the association between sociodemographic and affective-sexual variables of people living with HIV/AIDS (n=258), according to drug use

| ***VARIABLES*** | **Drug use** | | | | | | **P Value** |
|---|---|---|---|---|---|---|---|
| | **Yes = 74** | | **No = 184** | | **Total = 258** | | |
| | **N** | **%** | **N** | **%** | **N** | **%** | |
| ***SOCIODEMOGRAPHIC*** | | | | | | | |
| **Gender** | | | | | | | |
| Male | 47 | 32,4 | 98 | 67,6 | 145 | 100 | 0,133 |
| Female | 27 | 23,9 | 86 | 76,1 | 113 | 100 | |
| **Age (years)** | | | | | | | |
| 20\|–\|29 | 7 | 25,9 | 20 | 74,1 | 27 | 100 | 0,051 |
| 30 \|–\|39 | 24 | 42,1 | 33 | 57,9 | 57 | 100 | |
| 40 \|–\|49 | 27 | 29,0 | 66 | 71,0 | 93 | 100 | |
| ≥ 50 | 16 | 19,8 | 65 | 80,2 | 81 | 100 | |
| **Education** | | | | | | | |
| 0 \|–\| 5 | 36 | 28,6 | 90 | 71,4 | 126 | 100 | 0,998 |
| 6 \|–\| 10 | 20 | 28,6 | 50 | 71,4 | 70 | 100 | |
| ≥ 11 | 18 | 29,0 | 44 | 71,0 | 62 | 100 | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Marital situation** | | | | | | | |
| Single, widowed or separated | 41 | 27,7 | 107 | 72,3 | 148 | 100 | 0,781 |
| Married and living together | 33 | 33,0 | 77 | 77,0 | 100 | 100 | |
| **Patient income (minimum wage)** | | | | | | | |
| ≤ 1 | 38 | 23,3 | 125 | 76,7 | 163 | 100 | **0,010** |
| > 1 | 36 | 37,9 | 59 | 62,1 | 95 | 100 | |
| **Ocupaation** | | | | | | | |
| With income | 59 | 27,8 | 153 | 72,2 | 212 | 100 | 0,590 |
| No income | 15 | 32,6 | 31 | 67,4 | 46 | 100 | |
| **Practicing religious belief** | | | | | | | |
| Yes | 46 | 23,6 | 149 | 76,4 | 195 | 100 | **0,002** |
| No | 28 | 44,4 | 35 | 55,6 | 63 | 100 | |
| **AFFECTIVE-SEXUAL** | | | | | | | |
| **Sexual orientation** | | | | | | | |
| Heterosexual | 56 | 73,1 | 152 | 26,9 | 208 | 100 | 0,203 |
| Homo/Bisexual | 18 | 36,0 | 32 | 64,0 | 50 | 100 | |
| **Sexual partnership in the last 12 months** | | | | | | | |
| Yes | 33 | 30,0 | 77 | 70,0 | 110 | 100 | 0,687 |
| No | 41 | 27,7 | 107 | 72,3 | 148 | 100 | |
| **Type of sexual partnership in the last 12 months** | | | | | | | |
| Fixed | 36 | 27,7 | 94 | 72,3 | 130 | 100 | 0,922 |
| Eventual | 5 | 27,8 | 13 | 72,2 | 18 | 100 | |
| No partnership | 33 | 30,0 | 77 | 70,0 | 110 | 100 | |
| **Use of male condoms in the last 12 months** | | | | | | | |
| Always | 18 | 20,2 | 71 | 79,8 | 89 | 100 | **0,045** |
| Never | 14 | 46,7 | 16 | 53,3 | 30 | 100 | |
| Somtimes | 9 | 31,0 | 20 | 69,0 | 29 | 100 | |
| No sex life | 33 | 30,0 | 77 | 70,0 | 110 | 100 | |
| **TREATMENT** | | | | | | | |
| **Adverse effects** | | | | | | | |
| No | 52 | 26,4 | 145 | 73,6 | 197 | 100 | 0,145 |
| Yes | 22 | 36,0 | 39 | 63,9 | 61 | 100 | |
| **Interruption of antiretroviral therapy** | | | | | | | |
| No | 42 | 20,1 | 140 | 76,9 | 182 | 100 | **0,002** |
| Yes | 32 | 42,1 | 44 | 57,9 | 76 | 100 | |
| **CLINICS** | | | | | | | |
| **LT CD4 count (mm3/blood)** | | | | | | | |
| ≤ 350 | 23 | 37,7 | 38 | 62,3 | 61 | 100 | 0,075 |
| >350 | 51 | 25,9 | 146 | 74,1 | 197 | 100 | |
| **Viral Load Count** | | | | | | | |
| < 50 copies/ml (undetectable) | 47 | 27,6 | 123 | 72,4 | 170 | 100 | 0,609 |
| ≥ 50 copies/ml (detectable) | 27 | 30,7 | 61 | 69,3 | 88 | 100 | |
| **Hospitalizations due to HIV/AIDS complications** | | | | | | | |
| No | 47 | 26,1 | 133 | 73,9 | 180 | 100 | 0,075 |
| Yes | 27 | 34,6 | 51 | 65,4 | 78 | 100 | |
| **Comorbidities** | | | | | | | |
| No | 68 | 32,0 | 145 | 68,0 | 213 | 100 | **0,008** |
| Yes | 6 | 13,3 | 39 | 86,7 | 45 | 100 | |

Source: research data (2023).

Through logistic regression analysis, it was found that the predictors that remained statistically significant for drug use were age over 49 and income less than or equal to one minimum wage, as risk factors, and not having interrupted ART, as a protective factor (Table 2).

The age range of 40 to 49 and those over 50 were risk factors for drug use among people with PHHA, with 1.020 and 1.506 times, respectively, the odds of people in these age groups using drugs, compared to people in younger age groups.

Regarding individual income, when it was up to one minimum wage, there was a 1.099 times chance of people with this income using drugs, compared to people who earned more. This is a risk factor for drug use. People who reported never having interrupted antiretroviral treatment were 0.892 times more likely to not use drugs than those who reported having interrupted ART at some point. Not interrupting treatment is a protective factor against drug use.

**Table 2 –** Odds ratio (OR) of statistically significant variables of people living with HIV/AIDS (n=258) according to drug use

| Variáveis | Gross OR | *IC 95% Inf – Sup | P Value | Adjusted OR | *IC 95% Inf – Sup | P Value |
|---|---|---|---|---|---|---|
| **Age (years)** | | | | | | |
| 20\|–\|29 | 0,731 | 0,758 – 5,697 | 0,155 | 1,022 | 0,752 – 10,269 | 0,126 |
| 30 \|–\|39 | ... | Reference | ... | ... | Reference | ... |
| 40 \|–\|49 | 0,575 | 0,891 – 3,547 | 0,102 | 1,020 | 1,117 – 6,889 | **0,028** |
| ≥ 50 | 1,083 | 1,384 – 6,310 | **0,005** | 1,506 | 1,492 – 13,637 | **0,008** |
| **Income (minimum wage)** | | | | | | |
| ≤ 1 | 0,697 | 1,157 – 3,482 | **0,013** | 1,099 | 1,343 – 6,701 | **0,007** |
| > 1 | ... | Reference | ... | ... | Reference | ... |
| **Practicing religious belief** | | | | | | |
| Yes | 0,952 | 1,427 – 4,707 | **0,002** | 0,707 | 0,959 – 4,286 | 0,064 |
| No | ... | Reference | ... | ... | Reference | ... |
| **Use of male condoms*** | | | | | | |
| Always | 1,239 | 1,425 – 8,357 | **0,006** | 0,715 | 0,676 – 6,176 | 0,205 |
| Never | ... | Reference | ... | ... | Reference | ... |
| Sometimes | 0,665 | 0,671 – 5,638 | 0,221 | 0,052 | 0,298 – 3,727 | 0,935 |
| No sex life | 0,714 | 0,895 – 4,659 | 0,090 | 0,544 | 0,117 – 2,503 | 0,234 |
| **Interruption of antiretroviral therapy** | | | | | | |
| No | 0,886 | 1,369 – 4,292 | **0,002** | 0,892 | 1,132 – 5,259 | **0,023** |
| Yes | ... | Reference | ... | ... | Reference | ... |
| **Comorbidities** | | | | | | |
| No | ... | Reference | ... | | Reference | ... |
| Yes | 1,115 | 1,231 – 7,546 | ... **0,016** | 0,898 | 0,856 – 7,031 | 0,095 |

*IC95% - 95% Confidence Interval

## Discussion

In this study, the number of PLWHA who reported having used some legal or illegal drug in the last 12 months is similar to that found in a study conducted in sub-Saharan Africa (10) and in southern Brazil (11), which associated occasional drug use, such as alcohol and tobacco, with increased risky sexual behavior (10) and poor quality of life (11).

The predominance of participants who reported having consumed alcohol and of people who reported using more than one type of drug also resembles other national (4, 12) and international (3, 13) studies. Alcohol consumption is not only higher among PLWHA than in the general population (7, 9), but also acts as a disinhibiting factor for the use of other drugs, such as cigarettes and crack (11, 12, 13). The characteristics of the studied population were similar to those of other PLWHA and drug users, with a prevalence of males (12), age range of 40 to 49 years (11), low education level (4), living as single (4, 14), earning up to a minimum wage (4, 11), participating in some religious movement (11), being heterosexual (4), having a sexual partner (13) and presenting good laboratory indicators, such as CD4+ T count and viral load, satisfactory (4, 11).

Among the participants' characteristics, it was found that being over 40 years old, earning less than the minimum wage, having some religious belief, as well as using male condoms, not interrupting treatment, and having comorbidities were related to drug use.

The aging of the population and the increase in chronic diseases can impact the increased consumption of drugs, such as alcohol and tobacco, in almost 50.0% of the elderly population (15). This increase may be linked to a lack of knowledge about the real effects of drugs on health, as well as the need to alleviate the loneliness and lack of entertainment experienced by people in this age group (16, 17).

Thus, people who feel lonely and depressed may begin using psychoactive substances to alleviate the discomfort of depression symptoms, potentially developing drug dependence (15, 17). Thus, in addition to these expected positive effects, drug use can also negatively impact the health of these individuals, leading to physical, psychological, and social problems, which are not always recognized in this age group (15, 16, 17).

National studies indicate that factors such as low monthly income, low education level, lack of formal employment, fixed income, homeownership, and family ties increase the risk of drug use (4, 11, 18).

Thus, it is clear that in conditions of social and economic fragility, many people seek drug use (12, 13) as a way to cope with their current circumstances and overcome difficulties. Among the effects sought from drug use are increased feelings of joy and pleasure, the ability to suppress hunger, and even the improvement of physical sensations such as discomfort and pain (19, 20). Regarding the practice of some religious belief, it was evident that this variable was statistically significant in the analysis of the association with drug use and in the crude logistic regression model, behaving as a protective factor, which corroborates a study with adolescents, for whom religiosity and spirituality have a protective effect, modulating drug use and resulting in healthier and less risky behaviors (21).

The strong connection between current and former drug users and religious practices may be linked to their search for faith as a source of support in overcoming addiction. Church, as a welcoming institution, is an important source of social well-being, especially for people recovering from their addictions and seeking to build a new lifestyle (22, 23).

Regarding male condom use, although it was significantly associated with drug use, it did not yield significant results in the adjusted logistic regression model. The analysis of this variable revealed that although most study participants reported always using male condoms in their relationships, it is known that drugs, in addition to stimulating sexual activity, increasing libido and sexual performance (24), can also cause cognitive impairment that can lead to risky sexual behavior, multiple partners, and resistance to or forgetfulness in using condoms (3, 13). Furthermore, participants who were sexually active and reported always using condoms may not represent a true characteristic, since drug use and sexual behaviors are sensitive personal topics, and therefore reports are susceptible to recall bias, including deliberate concealment (3).

The association between ART discontinuation and drug use was found to be significant, with non-discontinuation of antiretrovirals being a protective factor against drug use.

It is known that non-adherence to antiretrovirals can lead to failure of basic treatment regimens, resulting in damage to the immune system, which is reflected in low CD4+ T lymphocyte counts, AIDS progression, and an increase in opportunistic infections (4, 24).

Thus, treatment discontinuation may result in a decrease in people's quality of life, with increased bodily changes and stigma related to HIV/AIDS, which may encourage avoidance, such as drug use (10, 20).

Thus, although drugs have significant negative effects on people's health, especially those living with HIV/AIDS, in situations of increased stress and pressure, many turn to drugs, such as alcohol and tobacco, as a way to manage physical and emotional pain, cope with social and family pressure, escape from negative experiences, and feel in control of the situation and less vulnerable to reality (19, 25).

Regarding the presence of comorbidities, although most participants did not report having any, their presence was statistically significant in the crude logistic regression model, acting as a risk factor for drug use and serving as a source of compensation for the difficulties faced.

It is known that drug use negatively impacts people's health, leading to a significant deficit in quality of life and leaving users more susceptible to opportunistic infections (4, 5). However, in the search for feelings of pleasure and relief from social and emotional pressures, many people choose to use drugs to achieve a greater sense of well-being and joy, attempting to alleviate negative feelings of sadness, pain, and depression (19).

Therefore, in the presence of comorbidities, especially in people living with HIV/AIDS, drug use can be a form of pleasure-seeking to compensate for the adverse effects of treatment or the progression of the disease (20).

## Conclusion

Regarding the odds ratio for drug use, the variables age, income, and ART discontinuation were statistically significant in the adjusted model. Age 40 or older and a monthly income of up to one minimum wage were considered risk factors, while continued ART discontinuation was considered a protective factor for drug use.

These results demonstrate that a decrease in people's quality of life can encourage drug use, and that drug use can negatively impact treatment adherence, weaken the immune system, and increase opportunistic infections.

Thus, given the expected and acquired effects of drug use and the scarcity of studies evaluating the perception of these effects in PLWHA, more studies investigating the relationship of drugs in the lives of PLWHA in their various contexts are desirable, considering not only the substance itself, but also the individual user and the context in which it occurs. Therefore, there is a need to understand drug use not from those who talk about it, but from those who use it.

**Acknowledgments**

To the Federal Institute of Southern Minas Gerais and the Ribeirão Preto School of Nursing for their institutional support in carrying out the study, and to the Passos Outpatient Clinic for granting authorization to collect the data.

## References

1. WORLD HEALTH ORGANIZATION (WHO). (2014a). **Data and statistics [internet]**. Global Update on the health sector response to HIV. Available at:< http://apps.who.int/iris/bitstream/10665/128494/1/9789241507585_eng.pdf?ua=1>. Accessed on: April 10, 2016.

2. WORLD HEALTH ORGANIZATION (WHO). (2014b). **World Drug Report**. Recent statistics and trend analysis of illicit drug markets. Available at:< http://www.unodc.org/documents/lpo-brazil//Topics_drugs/Publicacoes/World_Drug_Report_2014_web.pdf>. Accessed on: April 10, 2016.

3. LUO, X.; DUAN, S.; DUAN, Q.; PU, Y.; YANG, Y.; WONG, F. Y.; ELE, N. Prevalence and correlates of alcohol use and subsequent sexual activity among adult males in a rural community of ethnic minorities in Yunnan Province, China. **BioScience Trends**, v. 6, n.6, p. 288–295. 2012. doi: 10.5582.

4. MELO, V. H.; BOTELHO, A. P. M.; MAIA, M. M. M. Correa Júnior, M. D., & Pinto, J. A. Illicit drug use by HIV-infected pregnant women. **Brazilian Journal of Gynecology and Obstetrics**, v. 36, n. 12, p. 555–561. 2014. https://dx.doi.org/10.1590/So100-720320140005155.

5. FERRO, E. G.; WEIKUM, D.; VAGENAS, P.; COPENHAVER, M. M.; GONZALES, P.; PEINADO, J.; CABELLO, R.; LAMA, J. R.; SANCHEZ, J.; ALTICE, F. L. Alcohol use disorders negatively influence antiretroviral medication adherence among men who have sex with men in Peru. AIDS **Care: Psychological and Socio-medical Aspects of AIDS/HIV**, v. 7, no. 1, p. 93-104. 2015. doi: 10.1080 / 09540121.2014.963013.

6. ZEITOUNE, R. C. G.; FERREIRA, V. S.; SILVEIRA, H. S.; DOMINGOS, A. M.; MAIA, A. C. Adolescents' knowledge about drugs. **Esc Anna Nery**, v. 16, n. 1, p. 57-63, Jan-Mar, 2012.

7. BRAZIL. Ministry of Health. Brazil. **Health Surveillance Secretariat - Department of STDs, AIDS and Viral Hepatitis**. Epidemiological Bulletin AIDS and STDs. Brasília; IV – No. 01, 2015. Available at: <http://www.aids.gov.br/sites/default/files/anexos/publicacao/2015/58534/boletim_aids_11_2015_web_pdf_19105.pdf>. Accessed: April 10. 2016.

8. MATHERS, B. M.; DEGENHARDT, L.; BUCELLO, C.; LEMON, J.; WIESSING, L.; HICKMAN, M. Mortality among people who inject drugs: a systematic review and meta-analysis. **Bulletin of the World Health Organization**, vol. 91, no. 2, p. 102-123. 2013. doi: 10.2471/BLT.12.108282.

9. UNITED STATES. **National Institute on Drug Abuse**. Drug and alcohol use - a significant risk factor for HIV, 2015. Available at:< https://www.drugabuse.gov/related-topics/trends-statistics/infographics/drug-alcohol-use-significant-risk-factor-hiv>. Accessed: November 16, 2016.

10. YAYA, I.; SAKA, B.; LANDOH, D. E.; PATCHALI, P.M.; MAKAWA, M.; SENANOU, S.; IDRISSOU, D.; LAMBONI, B.; PITCHE, P. Sexual risk behavior among people living with HIV and AIDS on antiretroviral therapy at the regional hospital of Sokodé, Togo. **BMC Public Health**, vol. 14, no. 636. 2014. doi: 10.1186/1471-2458-14-636.

11. PASSOS, S. M. K.; SOUZA, L. D. M. An evaluation of quality of life and its determinants among people living with HIV/AIDS from Southern Brazil. **Cad. Public Health**, v. 31, no. 4, p. 800-814. 2013. doi: 10.1590/0102-311X00000514.

12. BATISTA, J. D'A. L.; ALBUQUERQUE, M. F. P. M.; XIMENES, R. A. A.; MIRANDA-FILHO, D. B.; MELO, H. R. L.; MARUZA, M.; MOURA, L. V.; FERRAZ, E. J. S. P. C.; RODRIGUES, L. C. Prevalence and socioeconomic factors associated with smoking in people living with HIV by sex, in Recife, Brazil. **Brazilian Journal of Epidemiology**, v. 16, no. 2, p. 432-443. 2015. doi:10.1590/S1415-790X2013000200018.

13. BROZ, D.; WEJNERT, C.; PHAM, H.T.; DINENNO, E.; HEFFELFINGER, J. D.; CRIBBIN, M.; KRISHANA, N.; TESHALE, E. H.; PAZ-BAILEY, G. **HIV infection and risk behaviors prevention and testing among injecting drug users** - National HIV Behavioral Surveillance System, 20 US cities, 2009. MMWR Surveill Summ, v. 63, no. 6, p. 1-51. 2014.

14. ROCHA, R. M. G.; PEREIRA, D. L.; DIAS, T. M. The context of drug use among transvestite sex workers. **Health and Society**, v. 22, n. 2, p. 554-565. 2013. doi: 10.1590/S0104-12902013000200024.

15. KANO, M. Y.; SANTOS, M. A.; PILLON, S. C. Alcohol use in older adults: cross-cultural validation of the Michigan Alcoholism Screening Test – Geriatric Version (MAST-G). **Rev Esc Enferm USP**; v. 48, n. 4, p. 648-55. 2014.

16. BARBOSA, K. K. S.; ROCHA, W. da S.; VIEIRA, K. F. L.; ALVES, E. R. P.; LEITE, G. de O.; DIAS, M. D. Conceptions of crack users about the drug. **UFSM Nursing Journal**, [S. l.], v. 5, n. 2, p. 286–294, 2015. DOI: 10.5902/2179769213474. Available at: https://periodicos.ufsm.br/reufsm/article/view/13474. Accessed on: June 27, 2024.

17. CANTÃO, L.; KAHEY, F.; LEONARDO, L.; MAGALHÃES, S. T. I.; DE OLIVEIRA, M.; DE OLIVEIRA, V. C.; MIRANDA, M. R. Sociodemographic and clinical profile of elderly

individuals with depression and the use of psychoactive substances. **Rev Rene**, v. 16, n. 3, p. 355-62, May-June 2015.

18. MARANGONI, S. R.; OLIVEIRA, M. L. F. Triggering factors for drug use in women. **Texto Contexto Enferm**, Florianópolis, v. 22, n. 3, p. 662-70, Jul-Sept, 2013.

19. BRAZIL. MINISTRY OF JUSTICE National Secretariat for Drug Policy. Brasília; **Module 2 Effects of Psychoactive Substances**, Ed. 7, 2014. Available at: < http://www.supera.senad.gov.br/wp-content/uploads/2016/03/SUP7_Mod2.pdf >. Accessed: Apr. 10, 2016.

20. PARSONS, J. T.; STARKS, T. J.; MILLAR, B. M.; BOONRAI, K.; MARCOTTE, D. Substance use patterns among HIV-positive adults over 50: implications for treatment and medication adherence. **Drug and Alcohol Dependence**, v.139, p.33-40. 2014. doi: 10.1016.

21. FELIPE, A. O. B.; CARVALHO, A. M. P.; ANDRADE, C. U. Spirituality and religion as protectors of drug use in adolescents. SMAD, **Electronic Rev. Mental Health Alcohol Drugs**. v.11, n. 1, p. 49-58. 2015. doi: 10.11606/issn.1806-6976.v11i1p49-58.

22. GONÇALVES, A. M. S.; MANOEL ANTÔNIO, S.; PILLON, S. C. Alcohol and/or drug use: assessment of spirituality and religious aspects. SMAD. **Electronic journal of mental health, alcohol and drugs**, v.10, n. 2, p. 61-69. 2014. https://dx.doi.org/10.11606/issn.1806-6976.v10i2p61-69

23. MOSCATI, A.; MEZUK, B. Losing Faith and Finding Religion: Lifelong Religiosity and Drug Use and Abuse. **Drug and Alcohol Dependence**, v. 136, p. 127-134. 2014. http://doi.org/10.1016/j.drugalcdep.2013.12.018

24. GASPAR, J.; QUINTANA, S. M.; REIS, R. K.; GIR, E. Sociodemographic and clinical factors of women with human papillomavirus and their association with the human immunodeficiency virus. **Revista Latino-Americana de Enfermagem**, v. 23, n. 1, p. 74-81. 2015. doi: 10.1590/0104-1169.3364.

25. COOK, R. L.; COOK, C. L.; KARKI, M.; WEBER, K. M.; THOMA, K. A.; LOY, C. M.; ... RAHIM-WILLIAMS, B. Perceived benefits and negative consequences of alcohol consumption in women living with HIV: a qualitative study. **BMC Public Health**, v. 16, n. 263. 2013. http://doi.org/10.1186/s12889-016-2928-x.