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HIV testing and post-exposure prophylaxis among men who have/ do not have sex with men[a]

Testagem para o HIV e profilaxia pós-exposição entre homens que fazem/ não fazem sexo com homens

Pruebas de VIH y profilaxis postexposición entre hombres que tienen/no tienen relaciones sexuales con hombres

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Abstract

Objectives: identify HIV testing and knowledge about post-exposure prophylaxis (PEP) among men; and compare data among men who have (or do not have) sex with men. **Method:** A cross-sectional study was conducted with 271 men participating in Carnival in Rio de Janeiro, selected through convenience sampling. The data were collected in the Sambadrome, with the help of a questionnaire in February 2017. The analysis was performed through the SPSS software. **Results:** There were disparities in HIV testing and knowledge about PEP among men who have (or do not have) sex with men. Men who have sex with men have better behaviors and knowledge of coping with HIV. **Conclusion and implications for practice:** HIV policies have managed to reach one of the key populations of the epidemic, men who have sex with men, yet men who do not have sex with men remain vulnerable.

Keywords: Knowledge; HIV; Post-exposure Prophylaxis; Sexual Behavior; Men's health.

Resumo

Objetivos: identificar a realização da testagem para o HIV e o conhecimento sobre profilaxia pós-exposição (PEP) entre homens; e comparar os dados entre homens que fazem (ou não) sexo com homens. **Método:** estudo transversal realizado com 271 homens participantes do carnaval no Rio de Janeiro, selecionados através da amostragem por conveniência. Os dados foram coletados no sambódromo, com auxílio de um questionário em fevereiro de 2017. A análise foi realizada por meio do software SPSS. **Resultados:** houve disparidades na realização de testagem para o HIV e conhecimentos sobre PEP entre homens que fazem (ou não) sexo com homens. Homens que fazem sexo com homens possuem comportamentos e conhecimento melhores de enfrentamento ao HIV. **Conclusão e implicações para a prática:** as políticas de enfrentamento ao HIV têm conseguido alcançar uma das populações-chave da epidemia, os homens que fazem sexo com homens, contudo homens que não fazem sexo com homens continuam vulneráveis.

Palavras-chave: Conhecimento; HIV; Profilaxia Pós-exposição; Comportamento Sexual; Saúde do Homem.

Resumen

Objetivos: identificar la realización de pruebas de VIH y el conocimiento sobre la profilaxis posterior a la exposición (PEP) entre hombres; y comparar datos entre hombres que tienen (o no) relaciones sexuales con hombres. **Método:** estudio transversal llevado a cabo con 271 hombres que participan en el carnaval de Rio de Janeiro, seleccionados mediante muestra de conveniencia. Los datos fueron recolectados en el sambódromo (lugar de espectáculo de danza), con la ayuda de un cuestionario, en febrero de 2017. El análisis se realizó utilizando el software SPSS. **Resultados:** hubo disparidades en las pruebas de VIH y el conocimiento sobre PEP entre hombres que tienen (o no) relaciones sexuales con hombres. Los hombres que tienen relaciones con hombres tenían mejores comportamientos y conocimientos para enfrentar el VIH. **Conclusión e implicaciones para la práctica:** las políticas para combatir el VIH han logrado llegar a una de las poblaciones clave de la epidemia, los hombres que tienen relaciones con hombres, sin embargo, los hombres que no tienen sexo con hombres siguen vulnerables.

Palabras clave: Conocimiento; VIH; Profilaxis Posexposición; Conducta Sexual; Salud del Hombre.

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INTRODUCTION

Confronting the HIV epidemic and, consequently, AIDS, is one of the global objectives of sustainable development established by the United Nations (UN). Currently, the world has never been so close to eradicate HIV transmission. Mathematical estimates suggest that the adoption of goal 90, 90, 90, proposed by the Joint United Nations Program on HIV/AIDS (UNAIDS), will establish the end of the epidemic by the year 2030.[1]

The ambitious goal calls for global leaders and civil society to make a commitment to ensure that 90% of people living with HIV have access to diagnosis, which 90% of people diagnosed have access to medication, and that 90% of people with access to medication achieve viral suppression. Brazil, as a UN signatory country, assumed the fulfillment of this goal in 2015 and reiterated in 2016.[2]

However, data from the HIV and AIDS epidemiological bulletin, issued by the Brazilian government Ministry of Health, reinforce the challenge that the country must face in order to guarantee the achievement of this goal. Despite the gradual reduction in the number of AIDS cases and deaths over the years, Brazil shows an increasing increase in the number of HIV cases, and in 2018 alone, 43,941 cases. Within the gender ratio, there are 26 infected men for every ten women. The main route of exposure remains sexual. Among men, the data collected from 2007 to June 2019 reinforce that sexual exposure through homosexual or bisexual relationships is the most prevalent with 51.3% of cases, while in heterosexual relationships it is 31.4%.[3]

Although the Brazilian government has advanced in treatment policies, observed in the reduction in the number of deaths and cases of AIDS, the same did not occur in prevention policies. We still experience a multifaceted and dynamic epidemic. Population groups, such as men who have sex with men (MSM) remain since the beginning of the epidemic until today as one of the most vulnerable to infection. In the Netherlands, 68% of HIV diagnoses in 2014 were among MSM. In China, during the whole year 2016, about ten university students were infected daily with HIV, eight of them among MSM. In low and middle income countries, it is estimated that MSM have almost 20 times more chance of HIV infection than the general population.[4-6]

Faced with the epidemiological scenario and the global agenda of confronting HIV, the Brazilian government restructures its prevention policy by adopting two important strategies: "treatment as prevention" (TasP), in December 2013, and the strategy of "combined prevention", in 2017. TasP was based on scientific evidence that demonstrated the effectiveness of the timely use of antiretroviral drugs in reducing the circulating viral load and, consequently, the reduction of new infections, i.e., undetectable is equal to non-transferable. In the world, the main point of interruption to reach the goal 90, 90, 90 has been the absence of diagnosis, but the most present point of interruption in the various countries has been the guarantee in the offer of treatment in virtues of structural barriers, costs of drugs and capacity of health services.[2,7]

To support TasP's strategy, the Unified Health System (UHS) had to expand the supply of biotechnological interventions and access to health services. Rapid tests and oral fluid tests were essential to ensure access, especially in remote regions, enabling timely diagnosis and treatment. The government has instituted technical manuals to enable the prescription of antiretroviral drugs by medical professionals from the most diverse specialties, especially in basic care units. During the period a new drug was also adopted, of first choice for virgin treatment people, which ensures faster suppression of viral load, less side effects and greater potency against resistance to drugs.[2,8]

However, advances in biomedical interventions alone are not resolute when decoupled from behavioral and structural interventions. Therefore, a "combined prevention" strategy was developed that recognizes the individual as a protagonist of his/her care process. In this strategy, the person has a variety of prevention methods that can be chosen according to the conditions and circumstances of life of each one, respecting their autonomy and considering their specificities and needs. The "combined" terminology reinforces the possibility for each individual to choose to add, exclude or replace one method with another or with others.[8,9]

Combined prevention values and recognizes legal frameworks and structural components to ensure: offering regular testing for HIV, other sexually transmitted infections (STIs) and viral hepatitis; post-exposure prophylaxis (PEP); pre-exposure prophylaxis (PrEP); prevention of vertical transmission; immunization for human papillomavirus and hepatitis B; harm reduction; diagnosis and treatment of people with STI and viral hepatitis; use of male, female condom and lubricant gel; treatment of all people living with HIV/AIDS. The strategy also foresees actions especially oriented to key and priority populations, in respect to the UHS principle of equity, such as men who have sex with men, transgender people, users of alcohol and other drugs, people deprived of freedom, sex workers and young, black, indigenous and street populations.[8]

This study aims at investigating the knowledge and adherence of elements that make up the combined prevention strategy among men who have (or not) sex with men. Men make up the population most affected by HIV/AIDS, and the national policy on comprehensive care to men recognizes that this population has the worst indicators of morbidity and mortality, besides generally not having the habit of seeking services to perform prevention and self-care activities. In relation to the MSM population group, the national comprehensive health policy for lesbians, gays, bisexuals, transvestites and transsexuals recognizes the stigma and prejudice that this population group faces in the access to and offer of care in health services and establishes actions to ensure effective care, especially in actions to confront HIV.

The stigma and discrimination that permeate HIV and the MSM population may favor the detachment from public policies to fight the epidemic. In such a dynamic and connected world, where new technologies emerge and are disseminated all the time, it is crucial that true information actually reaches the most vulnerable populations. Thus, this research aims to: identify the

performance of HIV testing and knowledge about post-exposure prophylaxis among men; compare data among men who have (or do not have) sex with men.

METHOD

This is a cross-sectional design survey, quantitative approach and convenience sampling. The field of study was the samba walkway of Professor Darcy Ribeiro, popularly known as the Sambadrome of Rio de Janeiro. In the Sambadrome, the samba schools' momesque parades that dispute the leadership of the championship take place. The event attracts tourists from all over the world, being considered one of the most important festive events in the city by moving about 400 thousand people among revelers, spectators and workers during the four days of competition.

The participants were the revelers and spectators, over 18 years old, with an active sexual life, that is, having had sex in the last 12 months and living in Brazil for at least 12 months. Participants who were not fluent in Portuguese or had limitations that prevented them from reading the questionnaire and/or understanding the Free and Informed Consent Term (FICT) were considered ineligible for the study.

Data collection took place on February 24, 25, 26 and 27, 2017, and was performed by eight research fellows of the extension project, previously trained in theoretical-practical education course for training multipliers on the topic of STI/HIV/AIDS and viral hepatitis. The scholarship holders were placed in the areas intended to organize samba schools in wards, for the beginning of parades in the Sambadrome (concentration areas: "*Balança, mas não cai*" and "*Correios*") and in the popular bleachers of sector 1, 12 and 13. This distribution aims at attracting eligible participants to the study, with revelers being approached in the areas of concentration and spectators in the popular bleachers. As it was a festive and competitive environment, with entrance costs for the appreciation of the spectacle and fantasy, the research was started around 6 pm, after the opening of the access gates to the bleachers of the Sambadrome, and closed before the beginning of the parades, approximately 9 pm, in order not to harm the appreciation of the event by the public. Weather conditions, such as rain and wind, were considered factors for temporary interruption of data collection, as the environment does not provide protection against the weather.

The data collection instrument used was a questionnaire containing 27 closed questions. Its elaboration took into consideration the study objectives, data obtained from previous surveys conducted by the project coordinator, as well as the social and epidemiological dynamics of STI/HIV/AIDS. The response time to the questionnaire took approximately ten minutes. A total of 630 participants were considered eligible for the matrix survey, coming from a convenience sampling.

In this investigation, a cutout of the larger survey was made using only the 283 questionnaires answered by males. Twelve questionnaires were discarded from this analysis that did not contain answers about same-sex sexual practice in the last 12 months. Thus, 271 participants were included in this study. In order to meet the objectives of this research, it was adopted as an independent variable: has had sexual intercourse with a person of the same sex as them in the past 12 months. As dependent variables: having been tested for HIV in the past 12 months, having been tested for HIV quickly in the past 12 months, knowing about a service that performs a free HIV test, reporting knowing what PEP is, reporting knowing where to get PEP, reporting having knowledge that antiretroviral therapy decreases the chance of infection, and reporting having sought health care after unprotected sex in the past 12 months.

The data was organized in a spreadsheet, using Excel 2003 Software resources, forming a database. Later, statistical analyses were performed through the Statistical Package for the Social Sciences (SPSS) software, presenting the data in simple frequencies and total percentage. To verify the association between variables, Pearson's chi-square test was applied.

The study followed the determinations of resolution 466/12 of the National Health Council, which regulates the accomplishment of researches involving human beings. The research was appreciated and approved by the Committee of Ethics in Research of the University where the research was carried out with the opinion number 223.405/2012.

RESULTS

In the study, 271 men and women identified themselves as cisgender. The mean age of the participants was 37.6 years and standard deviation of 12.45. Regarding sexual practice, 86 participants declared having sexual relations with men in the last 12 months, with a mean age of 37.66 years and standard deviation of 11.62; and 185 declared not having sexual relations with men in the last 12 months, with a mean age of 37.57 years and standard deviation of 12.84. Regarding sexual orientation, it is noted that 81.4% of men who have had sex with other men in the last 12 months declare themselves homosexual and 96.76% of men who have not had sex with men in the last 12 months declare themselves heterosexual.

Table 1 shows the social profile of participants from both groups. Participants who had sex with men had more years of study compared to those who did not have sex with men. In the other variables, no significant statistical differences were observed, demonstrating equivalence between the groups surveyed. The variables registered in health units or having a fixed partner could characterize a research bias, considering that registration in a health unit could be associated with access to education and health care, and that having a fixed partner could influence sexual conducts and risk perceptions.

Table 2 presents data on aspects of the combined HIV prevention strategy. It is noticeable that statistically significant differences were identified in all variables. MSM participants have greater expertise in HIV and prevention policies than the group of men who do not have sex with men.

Table 1. Social profile of men who have (or not) sex with men participating in the Carnival of the Sambadrome in Rio de Janeiro. Rio de Janeiro, RJ, Brazil, 2017. (n = 271).

Variables	MSM		Men who do not have sex with men		P-value*
	n	%	n	%	
Age group					
18 to 29 years old (young)	26	30.23	62	33.51	0.6
30 years or more (not young)	60	69.77	123	66.49	
Education time					
Up to 11 years of education	27	31.4	96	52.17	0.001
12 years or more of education	59	68.6	88	47.83	
Sexual orientation					
Bisexual	10	11.63	1	0.54	<0.00001
Heterosexual	5	5.81	179	96.76	
Homosexual	70	81.40	5	2.70	
Other	1	1.16	0	0	
Studies					
Yes	34	40	64	35.36	0.4
No	51	60	117	64.64	
Works					
Yes	71	82.56	154	83.24	0.8
No	15	17.44	31	16.76	
Registered in a basic health unit					
Yes	38	45.78	66	36.26	0.1
No	45	54.22	116	63.74	
Fixed partner					
Yes	66	77.65	142	77.17	0.9
No	19	22.35	42	22.83	
Total	86**	100	185**	100	

Key: MSM - men who have sex with men. *Tested Pearson chi-square. **Only valid answers were considered, as some questions were not answered by the participants. Source: prepared by the authors, 2020.

DISCUSSION

Men have always been the most vulnerable population group to HIV infection in Brazil. From 1980 to June 2019, there were 633,462 cases of AIDS in men, corresponding to 65.6% of cases compared to women. From 2002 to 2009, the ratio between sexes reached 15 cases in men for every ten cases in women. Since then, cases in men have increased again, and in 2018 there were 23 cases in men to ten cases in women. This occurred especially due to the reduction in the number of infections in women, about 38.2% in the last ten years, while the number of infections in men remained stable. If, on one hand, we had reasons for achievements, when advancing in policies against HIV/AIDS among women, the same did not happen among men.[3]

Globally, the male population still faces programmatic, social and behavioral vulnerabilities. Men are less likely to access testing, treatment, and care, and consequently experience a disproportionate mortality rate for HIV. To reverse this reality, health services must be engaged in challenging the gender norms that discourage men from seeking health services and developing policies, programs, and strategies for HIV service delivery targeted at this heterogeneous population with wide disparities in the various subgroups.[10]

Among the subgroups that make up the male population, we have those referring to sexual diversity, such as MSM and men who do not relate sexually to other men, being the target population of this study. Currently, in Brazil, the main transmission route for AIDS cases is the sexual one, and the main exposure

Table 2. Combined HIV prevention performed in the last 12 months by men who have (or not) sex with men participating in the Carnival of the Sambadrome in Rio de Janeiro. Rio de Janeiro, RJ, Brazil, 2017. (n = 271).

Variables	MSM		Men who do not have sex with men		P-value*
	n	%	n	%	
Had an HIV test					
Yes	68	79.07	70	37.84	<0.00001
No	18	20.93	115	62.16	
Had a quick HIV test					
Yes	37	44.05	18	9.78	<0.00001
No	47	55.95	166	90.22	
Sought care in health unit after sex without use or with failure to use the condom					<0.00001
Yes	22	26.5	13	7.14	
No	61	73.5	169	92.86	
Do you know of any health service where HIV testing is performed for free?					<0.00001
Yes	67	77.91	97	53.01	
No	19	22.09	86	46.99	
Have you heard about Post Exposure Prophylaxis (PEP)?					
Yes	45	52.33	44	24.18	<0.00001
No	41	47.67	138	75.82	
Do you know where you can acquire Post Exposure Prophylaxis (PEP)?					<0.0004
Yes	49	57.65	63	34.62	
No	36	42.35	119	65.38	
Knows that regular use of antiretroviral therapy reduces the chance of HIV transmission even after condom use failure?					<0.03
Yes	65	76.47	115	63.19	
No	20	23.53	67	36.81	
Total	86**	100	185**	100	

Key: MSM - men who have sex with men. *Tests Pearson chi-square. ** Only valid answers were considered, because some questions were not answered by the participants. Source: prepared by the authors, 2020.

category in men is homo/bisexuals, which corresponds to 40.3% of cases. However, in the North, Northeast and South regions of Brazil, the predominance of the exposure category was heterosexual, in 2018.[3]

The increase in heterosexual exposure has also been observed in the city of Ontario, which accounts for 40% of HIV cases in Canada. In 1991, less than 1% of HIV transmissions were among heterosexual men, while in 2014, transmission through this category accounted for 18.9% of new diagnoses. Evidence suggests few interventions focused on this population and a late entry of men into health care.[11] In an analysis of men's access to health services and the supply of HIV testing in the United States, it was observed that there is a demand for health services, but the chance of testing supply is zero in medical clinic services.[12]

The relationship of man, of being man, with his health has been widely discussed in an attempt to reformulate health care for this population group. Attempts encompass both the improvement of health professionals and the (re)structuring of public policies that are inclusive and directed to this public, as well as the National Policy on Integral Human Health Care (NPIHHC).

In a qualitative study that analyzed the social representations of being a man for homosexuals and heterosexuals regarding its

implications with HIV infection, it was identified that masculinity has as its unfolding the virility and that man would be, by his nature, insatiable sexually. The participants of the study pointed out that man is an individualistic subject with hedonistic practices. In the imaginative conception, the real man has an unbridled sexual practice. In both groups, hetero and homosexual, the real man as a subject with hedonistic practices was observed, validating the hegemonic masculinity.[13] The study, with young homosexuals, observed testimonies that reflect the roles of virility, obtaining and intensifying pleasure, attributed by common sense to "being a man".[14] The relationship between male norms and HIV-related sexual risk behavior is the subject of numerous investigations in several countries. The review study pointed out three main dimensions of male normativity that shape risk behaviors: uncontrollable sexual desire, sexual performance and power over others, corroborating the hedonistic conception of being a man.[15]

Impulsivity to risky sexual behavior is higher among men, as evidenced by other studies. In a survey conducted at the carnival in Rio de Janeiro, Brazil, men, compared to women, although they carry and use the condom more frequently in their daily lives, agree with claims that the condom hinders sexual intercourse and present more impulsive opinions for sexual practices even without using the condom.[16] In studies with college students, men also had statistically significant differences for sexual risk behavior. Although they use condoms more, compared to women, men have more sexual partners, had more anal sex practices, used drugs more and started sex earlier.[17] In population-based research in Thailand, the results are similar to the Brazilian reality. Men have higher risk sexual behaviors, such as multiple partners and the consumption of drugs and alcohol before intercourse, but use the condom more often than women.[18]

The data from this study show that the group of MSM has better HIV practices and knowledge than the group of men who do not have sex with men. A study conducted in ten Brazilian cities with men who have sex with men found that the knowledge on HIV/AIDS for 36.6% of participants is high, 37.4% has medium knowledge and 26% low. The variables associated with high knowledge were white skin color, higher economic classes (A and B), age over 25 years, having multiple partners and having been tested for HIV.[19] However, Brazilian data is worrying when analyzed in a time trend. Research, which compared data from 3,749 men who have sex with men in 2009 with 4,176 in 2016, found an increase in the perception of low risk of HIV infection, reduced knowledge about HIV and reduced testing, which fell from 49.8% in 2009 to 33.8% in 2016. Although participants received more condoms free of charge, counseling activities for STIs declined.[20]

The study, involving MSM in Brazil, suggests that the best performance of men who have sex with men in the data presented in this research may be associated to age-related bias, years of study and test performance, considering that the high level of knowledge on HIV is associated to age over 25, schooling over 12 years of study, having received information material on HIV / AIDS, having a health plan and having performed a test. In the aforementioned survey, only 23.7% had high knowledge about HIV and this reinforces the need for access to and dissemination of prevention policies.[4] In the United States, young MSM, compared to non-young men, are more likely to have sex without a condom, less access to health services, low income, greater variability of partners, and drug use. MSM, young people living with HIV, were less likely to use antiretroviral and have an undetectable viral load.[21]

Most participants in this research belong to the adult age group (over 29 years old), and MSM had higher levels of schooling and HIV testing. These data corroborate other research by stating that age, schooling and HIV testing increase the knowledge on how to confront the epidemic.[4,19,21,22] It should be noted that HIV testing involves access to health services and pre- and post-test counseling, which may have contributed to increased education of this group.

The demand for health services is not a reality experienced by men, especially young people. Culturally, the male population has difficulty in recognizing themselves as ill and tends to seek health services when the problem is already in place. Late demand makes health education and prevention activities more difficult. The public health services also experience a logic focused on the disease, with programs directed to the care of pathologies such as hypertension, diabetes, tuberculosis, HIV and others. Men who seek basic health units and do not have problems covered by these programs have difficulty in accessing services. In this way, they end up legitimizing the false sense of invulnerability of men to health problems.[23]

As for HIV testing, the greatest number of achievements among the MSM group may be associated to Brazilian health policy surveillance interventions. MSM are the largest category of exposure to HIV in the male group in Brazil, and thus strategies have been adopted for this population, including routine testing. Men who do not have sex with men can also practice anal intercourse sex, and have historical, cultural, social and behavioral conditions of vulnerability to HIV and other STIs, but are left on the sidelines in prevention policies or are covered in general educational materials.[24,25]

In Botswana, men were the least aware of their HIV status. After intervention with the local community, the level of knowledge of HIV status increased 37% among males and 77% among youth. The main strategy was to expand and direct the care to the population with the worst indicators to achieve the goal 90, 90, 90. In this sense, HIV testing programs were allocated in spaces and places predominantly frequented by this population, such as workplaces, farms, construction sites, bars and sports events. Access to testing has also made health education and HIV information activities possible.[1]

Capturing subjects for HIV testing involves morality implicit in arguments that sometimes assume stereotyped conceptions about masculinity, producing barriers to access to testing. Sexuality is a universe of possibilities that involve roles, identities, practices, tastes and preferences, and should always be an object of individual

and particular analysis in health care. Men, in general, should be seen as a vulnerable group to STI/HIV/AIDS and should feel part of prevention policies, adopting a diversified approach to capture different population subgroups. The individual has the right to exercise his/her sexuality with freedom and autonomy, and the access to information, education and knowledge in relation to STI/HIV/AIDS prevention is inherent to sexual and reproductive rights.[25]

CONCLUSION AND IMPLICATIONS FOR PRACTICE

The adoption of knowledge and behaviors in face of the new technologies of care, adopted by the Brazilian policy of confronting HIV, is still in the process of introjection by the male population. Men who do not have sex with men deserve special attention from health services and health education activities, as HIV testing practices and knowledge about PEP are minimal.

MSM are considered a key population in coping with the epidemic, and perform better in testing, in seeking health services after condom use failure, in knowledge about PEP, and in the benefits of antiretroviral therapy. Strategic and educational actions directed to the group of MSM, as they are considered a key population, may have contributed to the incorporation of new care technologies in their daily life for HIV/AIDS prevention.

The study had as a limitation the place of capture of information, that is, a dynamic scenario of a popular party that required a simple and objective instrument of data collection. The number of participants in this sample was small, when considering the public participating in the Rio Carnival, but it should be noted that it is a cut of a larger study. Climatic conditions, the need to accredit the project team and the time allocated for data collection, are other factors that have a negative impact on the sample quantity. Although most of the participants do not belong to the youth group, given that the occurrence of HIV is more frequent in this age group, the data presented corroborate other investigations. Although the research has a descriptive character, the data signal a public health problem that deserves special attention from health professionals and services.

Despite the limitations presented, the study highlights significant differences in addressing HIV in subgroups of the male population. These differences among population subgroups call for reflections on the strategies being outlined for education and health promotion and HIV prevention. Therefore, it is unquestionable how much progress is needed to guarantee sexual and reproductive rights and to implement national human health policy.

The practice of male population care needs to consider the marginalization of this population for years by health services. Therefore, it is necessary to use the critical sense and reflections on the performance of nursing in the offer of integral care, in the stimulation of the access of men to health services, in the guarantee of the access to prevention technologies and in the deconstruction of a hegemonic masculinity and of the non-recognition of vulnerabilities.

It is expected that the data and reflections from this study will be consumed by the scientific community to conduct other studies that assess the adherence of the male population, especially men who do not have sex with men, to the combined HIV prevention strategy, since this is a vulnerable population group resistant to adopting safe sexual behaviors.

AUTHOR'S CONTRIBUTIONS

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