

## Consumption of sexually explicit media and unprotected anal sex in men who have sex with men

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**Abstract** *This study aimed to evaluate the influence of bareback sexually explicit media (SEM) consumption on anal sex without a condom by men who have sex with men (MSM). To this end, a page was created on the Facebook® social network with a link that directed interested parties to a questionnaire. Cisgender men, aged 18 years and over, who had sex with other men in the last 12 months, were included. Data were collected in 2017 and analyzed using univariate and bivariate inferential statistics and multivariate logistic regression. A total of 2,248 MSM participated in the research, with a mean age of 24.4 years and a mean number of 3.9 partners in the last 30 days. Having multiple sexual partners (ORa: 9.4; 95% CI 3.9-22.4), preferring movies with bareback scenes (ORa: 2.6; 95% CI 1.5-4.6), considering this practice a fetish and realizing it (ORa: 3.52; 95% CI 2.3-5.4), having casual partnerships (ORa: 1.8; 95% CI 1.5-1.9) and being aware of the partner's negative serological status for HIV (ORa: 1.4; 95% CI 1.1-2.3) were factors that increased the likelihood of engaging in anal sex without a condom. Thus, we found an association between the consumption of bareback SEM and sex without a condom among MSM.*

**Key words** *Audiovisual media, Sexual behavior, Unprotected sex, Condoms, Sexual and gender Minorities*

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## Introduction

Sexually explicit media (SEM) comprise any type of material describing genitals or explicit sexual acts of any nature, causing or modifying the viewer's sexual feelings or thoughts<sup>1</sup>. Technological advances allowed the expansion and facilitated access to SEM, especially among male individuals, including men who have sex with men (MSM), and their consumption is widely accepted among them<sup>2</sup>.

The effect of SEM consumption on MSM's sexual health is controversial in the literature. Some studies have identified positive influences of SEM consumption on sexual development and sexual practices in MSM, as many adolescents and young people use these media as a source of information to learn about sexual identity, how to have sex with other men, understand their desires<sup>3,4</sup>, improve self-efficacy in condom use and increase interest in safe sex<sup>5</sup>. However, others report negative influences on sexual behavior, such as the acceptability of having sex without a condom as something common<sup>6</sup>. The differences found between studies may be associated with recent SEM changes regarding the use of condoms in the scenes, although there is no consensus on this association.

Alarmed by the AIDS epidemic, gay porn studios produced almost exclusively condom films until the late 1990s and early 2000s. From the second half of the 2000s, however, the homoerotic industry saw an increasing trend in the production of bareback films, an English term that refers to a horseback riding style in which the "cowboy does not use a saddle". The expression has been widely used by MSM to designate sex in which condoms are intentionally given up<sup>7-9</sup>.

These films often show semen exchange between actors, which has now become an almost universal practice among gay MSE producers<sup>10,11</sup>. In the U.S., one of the largest SEM producers in the world, only two of the major studios (Gay-Hoopla and GayRoom) continue to use condoms, and most new sexual scenes among gays are bareback<sup>12</sup>.

One of the reasons for this expanded SEM without a condom is the need to meet the increase in search of viewers for videos that portray this practice, which report that they represent the most natural sex, that is, closer to reality, and that they can carry different meanings depending on the scenario or context presented, the characteristics of the actors involved and the power relationships observed in the scene<sup>11</sup>. Other factors

that favored the growth of this type of SEM were the advances in antiretroviral therapy (ART), the emergence of PrEP with the combination of Emtricitabine and Tenofovir as pre-exposure prophylaxis for HIV, and serological testing to ensure the production of bareback movies and the sexual health of actors<sup>13,14</sup>.

In this sense, the term bareback has become common in SEM, ceasing to be one of the categories for gay audiences and becoming the norm. However, the increase in this practice may be contributing to a higher prevalence of HIV and other STIs in MSM<sup>15,16</sup>.

SEM consumption is significant in Brazil. A report by the Pornhub website, one of the largest erotic video platforms globally, registered 81 million daily visitors, with 28.5 billion yearly visitors. Brazil ranked tenth among the countries that most accessed Pornhub, with a predominant search for gay pornography<sup>17</sup>. In parallel, it was the only Latin American country with higher levels of new infections in the latest UNAIDS report and is the territory with the largest number of people living with HIV/AIDS in the Latin American region<sup>18</sup>.

Since no studies evaluate this object in the country, we aimed to assess the consumption of bareback SEM by men who have sex with men in Brazil and its association with anal sex without a condom.

## Materials and methods

This is an observational, cross-sectional, analytical study, using an online national (Brazil) survey conducted with MSM. An intentional sample was used based on the population of 3.5% of MSM recommended by the Brazilian Ministry of Health<sup>19</sup>. The sample size calculation also considered a maximum tolerable error of 5% and a significance level of 5%, and the final sample was fixed at 2,248 participants. The eligibility criteria were living in Brazilian territory, identifying as a cisgender male, aged 18 years or older, and having had at least one sexual relationship with another man in the last 12 months.

A page was created on Facebook® (<https://www.facebook.com/taafimdeque/>) with a fixed post containing details of the survey and an invitation to participate in order to collect data. This post was boosted to reach online participants in all Brazilian regions. Concomitantly, the research was published in Facebook® groups focusing bareback or SEM. Users had access to a link that

directed them to the study questionnaire hosted on Google Forms. Internet users who met the selection criteria were included, signed the Informed Consent Form online, and filled out all the questionnaire items. Participants should inform the e-mail to avoid duplicate responses.

The research questionnaire was subdivided into four sections: (i) personal characteristics, (ii) socio-cultural characteristics, (iii) health issues, and (iv) sexually explicit media consumption. Regarding SEM consumption, the participants were asked: a) if they preferred films with scenes with or without condoms; b) the age they started watching pornography; c) how many scenes they usually watched each week (considering that a scene contains an average of 20 minutes); d) how many minutes of bareback pornography they watched each week (considering that a scene contains an average of 20 minutes); e) the main access route to pornography; f) if, in their perception, bareback pornography consumption changed their sexual practice; g) if bareback sex was considered a fetish; and h) if bareback sex was considered a realizable fetish, that is, performed. Issues related to sexual posture (insertive/receptive/versatile) and anal sex without a condom (30 days to 6 months before the survey) were also raised by direct questions with a binary outcome (yes or no). Data was collected in September 2017.

The descriptive analysis of the numerical and categorical variables was performed with the IBM® Software Statistical Package for the Social Science (SPSS) version 26.0. The chi-square or Fisher's exact tests were used for the bivariate analysis of the variables of interest regarding the preference for bareback SEM, and variables with  $p < 0.50$  were carried forward to the multivariate logistic regression model. The crude and adjusted odds ratios (OR) (ORa) were obtained to assess factors related to the likelihood of engaging in unprotected anal sex, adopting the binary outcome "did you engage in anal sex without a condom? (Yes, No)". Variables with  $p < 0.20$  were admitted for constructing the logistic regression model adjusted with the forward conditional input method. The level of significance was set at 5%, with 95% confidence intervals. The best performance was considered of the multivariate model with aspects of accuracy, sensitivity, and specificity (Receiver Operating Characteristic - ROC), proving that the statistical performance developed was better than random.

The study complied with national and international human research ethics standards and

was approved by the Research Ethics Committee of the Federal University of Piauí, Brazil.

## Results

A total of 2,248 MSM participated in the study, with a mean age of 24.4 years ( $SD \pm 5.6$ ). The most frequent among the MSM studied was being single (69.1%), having higher education (81.9%), having a casual sexual partner (68.9%), identifying themselves as gay (85.3%), and having a negative serological status for HIV (49.1%). On average, the participants had 3.9 partners in the last 30 days, and a considerable percentage (33.3%) had more than three partners (Table 1).

Table 2 shows the results of the association between sociodemographic and behavioral characteristics with the outcome of sex without a condom at least once in the six months before data collection. Except for HIV serological status (0.103), all variables were statistically significant.

Table 3 shows the association between sex without a condom and the preference for consuming bareback scenes, in which all variables were statistically significant.

We opted for the logistic regression model to evaluate the influence of social, demographic, behavioral, and consumption characteristics on unprotected anal sex, by which we observed that the likelihood of engaging in anal sex without condoms increased: (i) having had three or more partners in the last 30 days (ORa=9.4 times); (ii) having bareback as a realizable fetish (ORa=3.5); (iii) preferring SEM with bareback scenes (ORa=2.6); (iv) having a casual sexual partner (ORa=1.8); and (v) knowing about the partner's negative serological status for HIV (ORa=1.4). On the other hand, protective factors were (i) not considering bareback as a fetish; (ii) being in a relationship; and (iii) having a relationship with an HIV-positive partner (Table 4).

## Discussion

This nationwide study recorded an association between preferring to watch bareback SEM and engaging in anal sex without a condom among Brazilian MSM. The number of partners, the type of sexual partnership established, the protection strategies adopted, and bareback fetishization seem to considerably increase the likelihood of individuals engaging in anal sex without a condom.

**Table 1.** Sociodemographic, sexual, and serological characteristics of men who have sex with men and their sexual partners (n=2,248).

Variable	n	%
Age in years		
18-20	530	23.6
21-30	1,466	65.2
>30	252	11.2
Schooling		
High school or lower	112	5.0
Higher Education	1,841	81.9
Postgraduate	295	13.1
Marital status		
Single	1,554	69.1
With a partner	694	30.9
Sexual orientation		
Gay	1,917	85.3
Bisexual	265	11.8
Heterosexual	26	1.1
Pansexual	40	1.8
Type of sexual partnerships established		
Casual	1,043	46.4
Steady	699	31.1
Steady and casual	506	22.5
Serological status of the last partner for HIV		
HIV+	72	3.2
HIV-	1,104	49.1
Don't know	1,072	47.7
Sexual partners in the last 30 days		
None	293	13.0
1-2	1,207	53.7
3 and over	748	33.3

Source: Elaborated by the authors.

The preference for bareback movies was significantly associated with sex without condoms among participants, with insertive/receptive anal sex, and oral sex, increasing 2.6 times the likelihood of MSM engaging in anal sex without condoms. This data is similar to what has already been described by other authors in the U.S.<sup>6</sup>, Norway<sup>20</sup>, and Australia<sup>21</sup>, corroborating the existence of a direct link between the preference for bareback scenes and the intentions of engaging in sex without a condom.

According to the literature, MSM in a relationship with a steady partner tend to consume more bareback SEM and have more sex without a condom than single individuals with multiple

partnerships and casual sex<sup>22</sup>. Such behavior can be explained because couples are more insecure and more likely to protect themselves at the relationship's onset. However, as partners become long-lasting, trust and familiarity with partners increase, decreasing the perceived risk and causing those involved to decrease condom use frequency or not use condoms in their sexual intercourse with a steady partner<sup>23</sup>.

However, we observed that bareback SEM visualization could contribute significantly to an increase in anal sex without a condom among those with a stable relationship and those engaging in casual sex and with multiple partners, especially the youngest<sup>24,25</sup>.

Our findings show that almost half of the participants reported knowing about the negative HIV status of the last partner, which was associated with a greater likelihood of engaging in anal sex without a condom and may be due to the current serosorting, a term used to describe the choice of sexual partners based on HIV status<sup>26</sup>. Studies show that MSM have widely used this practice as a determinant for having sex without condoms among seroconcordant individuals, both in seronegative and seropositive individuals, especially when partners are familiar with each other<sup>27,28</sup>.

Among the survey participants, 47.7% reported not being aware of the status of the last partner. Of these, only a third reported having bareback sex in the last 30 days, reinforcing that unawareness of partners' status may make these individuals prefer sex with condoms<sup>27</sup>.

However, there is evidence that the increase in serosorting related to anal sex without condoms in MSM can contribute to the higher incidence of other STIs, such as syphilis<sup>29</sup>, chlamydia, gonorrhea<sup>30</sup>, and hepatitis C<sup>31</sup>, besides HIV, considering the existence of immune window periods and the associated risks. SEM play a vital role in this process, as seronegative men consuming bareback SEM are more tempted to perform it than those consuming SEM in a protected relationship<sup>32</sup>.

This connection is based on the fact that human behavior has a potential basis for imitation, that is, individuals tend to reproduce consciously or unconsciously other people's attitudes, influenced by social, cognitive, emotional aspects, which directly or indirectly translate their preferences, even if they represent some health risk<sup>33,34</sup>. In this way, bareback SEM exposure can arouse interest in the viewer in the long or short term, making them direct their desire/fantasy for this

**Table 2.** Bivariate analysis of the association between sociodemographic and behavioral characteristics with sex without a condom (n=2,248).

Variables	Sex without a condom (last 6 months)						p-value
	Yes		No		Total		
	n	%	n	%	n	%	
Age in years							
18-20	203	38.3	327	61.7	530	23.6	<0.001
21-30	763	52	703	48	1.466	65.2	
>30	143	56.7	109	43.3	252	11.2	
Schooling							
High school or lower	48	42.9	64	57.1	112	5.0	0.045
Higher Education	895	48.6	946	51.4	1.841	81.9	
Postgraduate	166	56.3	129	43.7	295	13.1	
Marital status							
Single	629	40.5	925	59.5	1.554	69.1	<0.001
With a partner	480	69.2	214	30.8	694	30.9	
Sexual orientation							
Gay	977	51.0	940	49.0	1.917	85.3	<0.001
Bisexual	118	44.5	147	55.5	265	11.8	
Heterosexual	10	38.5	16	61.5	26	1.2	
Pansexual	4	10.0	36	90.0	40	1.8	
HIV serological status (self-report)							
HIV+	77	58.3	55	41.7	132	5.9	0.103
HIV-	881	48.8	925	51.2	1.806	80.3	
Don't know	151	48.7	159	51.3	310	13.8	
Type of sexual partnerships established							
Casual	389	37.3	654	62.7	1.043	46.4	<0.001
Steady	455	65.1	244	34.9	699	31.1	
Steady and casual	265	52.4	241	47.6	506	22.5	
Sexual partners in the last 30 days							
None	19	6.5	274	93.5	293	13.0	<0.001
1-2	631	52.3	576	47.7	1.207	53.7	
≥3	459	61.4	289	38.6	748	33.3	
Serological status of the last partner for HIV							
HIV+	34	47.2	38	52.8	72	3.2	<0.001
HIV-	689	62.4	415	37.6	1.104	49.1	
Don't know	386	36	686	64	1.072	47.7	

Source: Elaborated by the authors.

practice, making it a fetish and stimulating curiosity in doing it.

Interestingly, we found that the number of participants who considered bareback a fetish was similar between those who engage in it and those who do not, which corroborates previous research<sup>20,35</sup>, suggesting that having bareback as a fetish may be a positive factor when perceived as a replacement for reality (real anal sex), that is, they have this practice as a fetish, but they do not realize it, so they keep on just wishing it.

On the other hand, fetish can lead to excessive and problematic consumption of these media, enabling the tendency to see this behavior as a stimulus to practice, seeking new sensations, which increases the likelihood of having anal sex without a condom<sup>16,24</sup>.

Therefore, further research is required to investigate better whether MSM prefer bareback SEM either because they already engage in this type of sex, or because this predilection corresponds to an internal desire or fantasy, but does

**Table 3.** Bivariate analysis of the association between preferring to watch a bareback movie and sex without a condom (n=2,248).

Variables	Preferring to watch bareback movies						p-value
	Yes (n=982)		No (n=1,266)		Total (n=2,248)		
	n	%	n	%	n	%	
Did you engage in bareback sex (insertive or receptive) in the last 6 months?							
Yes	568	25.3	541	24.0	1,109	49.3	<0.001
No	414	18.4	725	32.3	1,139	50.7	
Did you engage in bareback sex as insertive without a condom in the past 30 days?							
Yes	367	16.3	375	16.7	742	33.0	<0.001
No	615	27.4	891	39.6	1,506	67.0	
Did you engage in bareback sex as a receptive without a condom in the past 30 days?							
Yes	402	17.9	370	16.5	772	34.4	<0.001
No	580	25.8	896	39.8	1,476	65.6	
Did you engage in oral sex without a condom in the past 30 days?							
Yes	803	35.7	974	43.3	1,777	79.0	0.006
No	179	8.0	292	13.0	471	21.0	
Do you consider bareback a fetish?							
Yes	697	31.0	474	21.1	1,171	52.1	<0.001
No	285	12.7	792	35.2	1,077	47.9	
Do you consider bareback a realizable fetish?							
Yes	410	69.6	287	49.3	589	50.3	<0.001
No	179	30.4	295	50.7	582	49.7	
Do you believe that watching bareback movies influences sexual practice?							
Yes	499	22.2	580	25.8	1,079	48.0	0.019
No	483	21.5	686	30.5	1,169	52.0	

Source: Elaborated by the authors.

not represent their sexual behaviors, just as it is necessary to rethink prevention strategies for this population, with an emphasis on measures addressing safe sex eroticization and the clarification of pre-existing sexual beliefs, especially among the youngest, and that consider the new HIV prevention methods and strengthen the importance of condoms in preventing other STIs.

This study has some relevant limitations. First, the information was self-reported and subject to biases in memory and social desirability. Although there may be reservations about data from the viewpoint of information accuracy, the literature is full of studies that reinforce the feasibility of studying subjects that involve taboos and diseases laden with stigma and prejudice,

such as HIV/AIDS, especially in not very accessible populations, through self-reported data<sup>36,37</sup>. Second, the incomplete responses were not saved in Google Forms. Third, the disclosure in specific groups on the Facebook® social network, focused on sexual practices among MSM, may have implied sample selection bias and influenced the results.

We also highlight that, although the research was carried out in all states of the five Brazilian regions, the absence of sample calculation hinders generalizing the data. Finally, the research was carried out when Pre-exposure Prophylaxis (PrEP), which could provide interesting findings related to the management of anal sex without a condom, was not freely available in Brazil.

**Table 4.** Multivariate analysis of factors associated with engaging in anal sex without a condom.

Variable	ORa	95%CI	p-value
Relationship			
Not being in a relationship	1		
Being in a relationship	0.6	0.3-0.9	0.48
Not knowing the partner's serological status			
HIV-positive partner	0.7	0.4-1.0	0.034
Negative status	1.4	1.1-2.3	0.058
Sexual partners in the last 30 days			
None	1		
1-2	1.8	1.2-2.8	0.004
≥3	9.4	3.9-22.4	<0.001
Type of sexual partnerships established			
Steady	1		
Casual	1.8	1.5-1.9	<0.001
Steady and casual	0.91	0.54-1.5	0.721
Bareback sexually explicit media consumption			
Does not consume	1		
Consumes	1.4	1.2-1.7	<0.001
Scene preference			
With condom	1		
With bareback sex	2.6	1.5-4.6	0.001
No preference	1.7	1.4-2.1	<0.001
Bareback as fetish			
Yes	1		
No	0.49	0.32-0.76	0.001
Bareback as a realizable fetish			
No	1		
Yes	3.52	2.3-5.4	<0.001

ORa: Adjusted odds ratios; CI: confidence interval.

Source: Elaborated by the authors.

## Conclusion

We found an association between the consumption of bareback SEM and engaging in sex without a condom among MSM, in which the preference for media that portray this type of sex, the idea of considering it a fetish, the type of sexual partnership, and knowledge of the partner's serological status for HIV may increase the likelihood of engaging in anal sex without a condom.

This study and much of the research already carried out on SEM's influence on the sexual behavior of MSM considered only sex without a condom, excluding PrEP and other combined prevention methods. Thus, further studies are suggested to assess the relationship between the use of new prevention methods, the consumption of SEM, and the MSM's sexual behavior.

## Collaborations

AFL Sousa, AAFLN Queiroz and IAC Mendes: conception, collection, planning, analysis, interpretation and writing of the work. AA Martins, OP Frota, TME Araújo and I Fronteira: analysis, interpretation and writing of the work. All authors approved the final version to be published.

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