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Effects of Condom Use, Anal Bleeding, and Group Sex on the Risk of HIV Infection in Men Who Have Sex: A Meta-Analysis

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ABSTRACT

Background: Sexual transmission of HIV among men who have sex with men (MSM) continues to increase. There are several factors that affect the occurrence of HIV infection in Male Sex Addiction. In this study, we will discuss three factors, namely condom use, anal bleeding and sex group ownership. This study aims to analyze and estimate the strength of the relationship between the incidence of HIV infection and condom use, anal bleeding, and sex group ownership.
Subjects and Method: A systematic review and meta-analysis study was conducted using the PICO model. Population: male sex male. Intervention: not using condoms, anal bleeding after sex, and having sex groups. Comparison: using a condom, no anal bleeding after sex, and no sex group. Outcome: HIV infection. The basic data used includes Google Scholar, Proquest, Scopus, PubMed, Zendy, ScienceDirect, BMC, Elsivier, and Springer Link. The inclusion criteria are full-text articles with a cross-sectional study design using multivariate and attaching aOR values and published 1996-2023. The Data analysis using the Review Manager 5.3 application.
Results: This meta-analysis was carried out on seven cross-sectional studies originating from China, Tanzania, and Brazil. Total sample size=13,188 people. The risk of HIV infection in men who have sex with men increased with the use of no condoms (aOR= 1.35; CI 95%= 1.10 to 1.65; p= 0.004), there was anal bleeding after sex (aOR= 1.89; CI 95%= 1.53 to 2.34; p<0.001), and group sex (aOR= 2.30; CI 95%= 1.62 to 3.25); p<0.001).
Conclusion: The risk of HIV infection in men who have sex with men increases by not using condoms, having anal bleeding after sex, and having group sex.

Keywords: Condom use, anal sex, anal bleeding, male gender, HIV infection

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BACKGROUND

HIV (Human Immunodeficiency Virus) is a virus that attacks the human immune system, weakening the body's ability to fight infections and diseases. HIV transmission among MSM (Male Sex Male) can occur through a variety of risk factors. The use of condoms is one of the effective preventive measures because it can reduce the risk of HIV transmission during sexual intercourse.

Anal sex is considered to have a higher risk of transmission compared to penile-vaginal sex, because the vulnerable rectal lining of the wound makes it easier for the HIV to enter the bloodstream. Another risk factor to consider is the practice of group sex, which can increase the risk of HIV transmission among MSIs, as it involves sexual interaction with multiple partners which can expand exposure to the virus. Therefore, understanding these factors is important in efforts to prevent HIV transmission among MSIs, as well as the importance of education, condom use, and safe sex practices to reduce the risk of HIV transmission among this group (Ishungisa et al., 2020).

The global prevalence of HIV among MSIs (Male Sex Males) shows significant variation across different regions. According to a report (O'Keefe, 2014), the highest prevalence of HIV in MSM was found in Central and West Africa, reaching 15%. The multicity study found that in the United States, 1 in 5 MSRPs are infected with HIV. The prevalence rate of HIV among MSIs has reached 1.4% of the male adult population over the age of 15 in Asia Pacific (Onovo et al, 2021). Meanwhile, in Indonesia, the prevalence of HIV in the MSM group has tripled in the last 10 years, from 5.3% in 2007 to 17.9% in 2019. The LSL group has a sharply increasing HIV prevalence, as recorded in a study related to HIV and AIDS prevention behaviors in LSL in Indonesia (Purnamawati et al., 2022). These studies provide an important picture of HIV prevalence among MSIs globally, highlighting the major challenges faced in efforts to prevent and control the spread of HIV among these groups. HIV is a serious public health threat among men who have sex with men (MSM) both locally and internationally (Health, 2015).

Condom use refers to a group of MSMS who use condoms during sex. Couples with MSM who have never or occasionally used a condom while having anal sex with a man in the past 6 months (aOR= 1.51, 95%CI: 1,016 to 2,257, p= 0.041) are more likely to contract HIV (Chen et al., 2018). Anal bleeding is an event in which bleeding occurs during or after anal sex. Anal bleeding in MSM can increase the risk of HIV transmission. Anal bleeding is one of the most common complications. This bleeding can be caused by a variety of factors, such as a lack of natural lubrication in the anus which makes the penetration rougher and potentially tears the tissue around the anus. In addition, injuries to the anus that are prone to occur during anal sex can also trigger bleeding. When there is excessive friction or inadequate penetration, the sensitive tissue around the anus can be injured and bleed.

This anal bleeding not only causes physical discomfort, but also increases the risk of infection and transmission of sexually transmitted diseases such as HIV, herpes, and bacterial infections (Xu et al., 2011). The prevalence of risk factors for anal bleeding increases with age between 16 and 21 years (19.8%) and is one of the highest attributable fractions in the adjusted population (aPAF) among MSMS. HIV transmission through anal sex has a higher risk compared to penile-vaginal sex because the rectal lining is thinner and more susceptible to wounds. Anal bleeding can increase the risk of HIV transmission, considering that wounds or tears in the rectal wall can make it easier for HIV to enter the bloodstream (Mao et al., 2018).

Group sex (group sex) refers to having a group of people having sex or having sex in a group. Group sex practices can increase the risk of HIV transmission among MSIs, as it involves sexual interaction with multiple partners which can expand the likelihood of exposure to the

virus. Hail research indicates that HIV infection is significantly (aOR = 1.40; 95% CI 1.1 to 1.9), associated with having multiple male partners (Xu et al., 2011)

Examining the factors that cause HIV in MSM is essential to understand in depth how the virus spreads among this group. By examining factors such as sexual behavior, condom use, anal bleeding, and group sex practices, we can identify patterns that influence HIV transmission among MSIs. The information obtained from this study can be used to design more effective and targeted prevention programs, as well as provide a strong scientific basis for more targeted interventions. In addition, this research can also help in increasing awareness and education about HIV/AIDS risk among MSIs, as well as providing a foundation for more holistic and sustainable prevention efforts. Thus, the study of factors that cause HIV in MSM aims to analyze and estimate the strength of the association between the incidence of HIV infection and condom use, anal bleeding, and sex group ownership.

SUBJECTS AND METHOD

1. Study Design

The study is a systematic review and meta-analysis guided by PRISMA flowcharts. The databases used involve Google Scholar, Proquest, Scopus, Pubmed, Zendy, Science-Direct, BMC, Elsivier, and Springer Link. The keywords used are ("MSM" OR "Gay" OR "Men Who Have Sex With Men") DAN ("HIV" Infection OR "HIV Incidence") AND "Anal Bleeding" AND "Condom Use" AND "Group Sex".

2. Step of Meta-Analysis

Meta-analysis is carried out in 5 stages as follows:

1) Formulate research questions using the PICO model. Population: male sex male. Intervention: not using condoms, anal bleeding after sex, and having sex groups. Comparison: using a condom, no anal bleeding after sex, and no sex group. Outcome: HIV infection.
2) Searching for articles on electronic databases used includes Google Scholar, Proquest, Scopus, PubMed, Zendy, Science-Direct, BMC, Elsivier, and Springer Link.
3) Conducting screening and assessing primary studies.
4) Extract data and enter effect estimates from each primary study into the RevMan 5.3 application. The results of the analysis of the article are presented in the form of aOR as a whole which describes the Confidence Interval (CI) of 95% using the effect and data heterogeneity model (I^2).
5) Interpreting results and concluding.

3. Inclusion Criteria

The author developed inclusion criteria, namely English-language articles with cross-sectional studies published between 1996-2023. The analysis used is a multivariate analysis with an adjusted odds ratio (aOR). The subjects of the study were men who had sex with men, and the results analyzed were HIV infection.

4. Exclusion Criteria

The exclusion criteria in this study are RCT (randomized controlled trials) studies, quasi-experiments, research protocols, preliminary studies, and non-full text articles.

5. Operational Definition of Variable

Condom use: using a condom during sex

Anal bleeding: is bleeding during or after anal sex

Sex group: is to have a group in sex

6. Study Instruments

Primary studies that have been screened will undergo a critical assessment or review of study to determine eligibility. The assessment instrument used the Critical Appraisal Cross-sectional Study for Meta-analysis Research published by the Master of Public Health, Sebelas Maret University of Surakarta (2023).

7. Data Analysis

Articles were identified using PRISMA diagrams, and those meeting the inclusion criteria were analyzed with RevMan 5.3 to determine the effect size and heterogeneity of the studies. The processed data were summarized in terms of odds ratio (OR), 95% confidence intervals, and p-values.

RESULTS

The baseline data resulted in 1,934 potentially relevant articles. The PRISMA diagram of the literature search along with the results is reported in Figure 1 based on the selection criteria, a total of 504 articles were identified for further complete review. In the end, as many as 15 full-text articles were included.

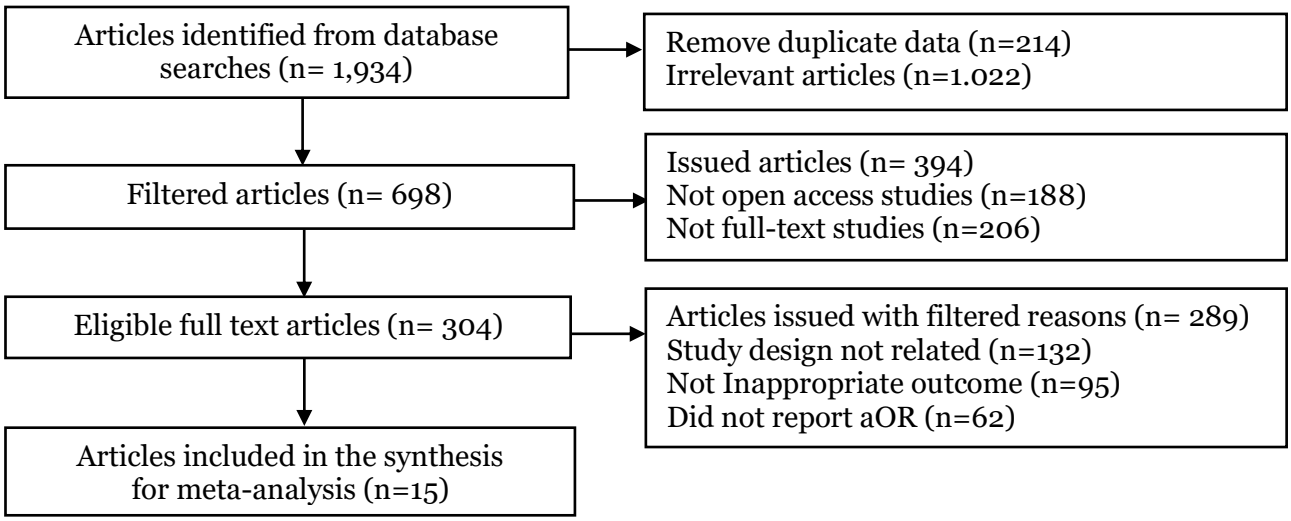

Figure 1. PRISMA flowchart effects of condom use, anal bleeding, and group sex on the risk of HIV infection in men who have sex

Figure 2. Location map of research on condom use, anal bleeding, and group sex on the risk of HIV infection in men male sex: a meta-analysis study

Table 1. Critical appraisal for cross-sectional study of the effect of condom use, anal bleeding, and group sex on the risk of HIV infection in men sexually engaged

Authors (Year)	Criteria														Total
	1a	1b	1c	1d	2a	2b	3a	3b	4a	4b	5	6a	6b	7	
Xu et al. (2011)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	28
Chen et al. (2018)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	28
Dai et al. (2017)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	28
Ishungisa et al.(2020)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	28
Xiao et al. (2010)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	28
Mmbaga et al. (2017)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	28
Silva et al. (2020)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	28
Zhang et al. (2020)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	28
Mao et al. (2018)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	28
Xu et al. (2016)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	28
Lu et al. (2021)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	28
Zufiiga dan Mueller (1996)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	28
Qin et al. (2023)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	28
Wei et al. (2019)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	28
Mwaniki et al. (2023)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	28
Zheng et al. (2020)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	28

Description of the question criteria:

1. Formulation of research questions in the acronym PICO.
a. Is the population in the primary study the same as the population in the PICO meta-analysis?
b. Is the operational definition of exposure/ intervention in the primary study the same as the definition intended in the meta-analysis?
c. Are the comparisons used in the primary study the same as those planned in the meta-analysis?
d. Are the outcome variables studied in the primary study the same as those planned in the meta-analysis?
2. Methods for selecting research subjects.
a. Descriptive cross-sectional studies (prevalence): Were the samples randomly selected?
b. Cross-sectional analytical studies: Are the samples randomly selected or purposive?
3. Methods for measuring interventions and outcome variables
a. Are exposures/interventions and outcome variables measured with the same instruments in all primary studies?
b. If the variables are measured on a categorical scale, are the cutoffs or categorical used the same between primary studies?
4. Design-related bias
a. What is the Response Rate?
b. Is non-response related to outcome?
5. Methods to control confounding
a. Is there any confusion in the results/ conclusions of the primary study?
b. Have primary study researchers used the right methods to control the effects of confusion?
6. Statistical analysis methods
a. In cross-sectional studies, is a multivariate analysis performed? Multivariate analysis includes multiple linear regression analysis, multiple logistic regression analysis, and Cox regression analysis.
b. Do primary studies report effect measures or relationships of multivariate analysis outcomes? (for example, adjusted OR, adjusted regression coefficient).
7. Conflict of Interest
a. Is there a conflict of interest with the research sponsor?
b. If there is a conflict of interest, give it a value of "0".

c. If there is no conflict of interest, give it a grade of "2".
d. When in doubt, give it a "1".

The assessment instructions are as follows:

1. The total answer score for each question is "2".
2. If in one question all answer items are "Yes", then give a score of "2" to the question.
3. If there is one item in one question whose answer is "No", then give the question a score of "1".
4. If in one question all the answer items are "No", then give the question a score of "0".
5. If the total score = 14 then the primary study can be used in the meta-analysis.
6. If the total score is <14 then the primary study cannot be used in the meta-analysis

Table 4. PICO table summary of Cross-Sectional article Source Primary study for the effect of condom use, anal bleeding, and sex group on the risk of HIV infection in men who have sex with a sample size (n=12,749)

Author (year)	Country	Sample	P	I	C	O
Xu et al. (2011)	China	436	MSM high school and college students, at least 18 years of age	No use, condom Anal bleeding	Use condom, No anal bleeding	HIV Infection
Chen et al. (2018)	China	5,283	Men who have sex with men	No use condom	Use condom	HIV Infection
Dai et al. (2017)	China	533	Men who have sex with men	No use condom	Use condom	HIV Infection
Ishungisa et al. (2020)	Tanzania	579	Men who have sex with men	No use condom, Had group sex	Use condom, no had group sex	HIV Infection
Xiao et al. (2010)	China	4,983	Men who have sex with men (MSM) aged 18 and above	No use condom	Use condom	HIV Infection
Mmbaga et al. (2017)	Tanzania	409	Men who have sex with men	No use condom, had group sex	Use condom, no had group sex	HIV Infection
Silva et al (2020).	Brazil	522	Men who have sex with men	No use condom, anal bleeding	Use condom	HIV Infection
Zhang et al. (2020)	China	565	student men who have sex with men	Had anal bleeding	No had anal bleeding	HIV Infection
Mao et al. (2018)	China	1,313	Young men who have sex men	Had anal bleeding	No had anal bleeding	HIV Infection
Xu et al (2016)	China	4,496	Men who have sex with men	Had anal bleeding	No had anal bleeding	HIV Infection
Lu et al. (2021)	China	1,701	Men who have sex with men	Had anal bleeding, had group sex	No had anal bleeding, no had group sex	HIV Infection
Zufiiga dan	Mexico	2,758	Men sex with men	Had anal bleeding	No had anal bleeding	HIV Infection

Author (year)	Country	Sample	P	I	C	O
Mueller (1996)						
Qin al. (2023)	China	934	Men who have sex with men	Had group sex	No had group sex	HIV Infection
Wei et al. (2019)	China	4,392	Men who have sex with men	Had group sex	No had group sex	HIV Infection
Mwaniki et al. (2023)	Kenya	242	Student men who have sex with men (MSM)	Had group sex	No had group sex	HIV Infection
Zheng et al. (2020)	China	1,330	Men who have sex with men	Had group sex	No had group sex	HIV Infection
Lu et al. (2021)	China	403	Men who have sex with men	Had group sex	No had group sex	HIV Infection
Wei et al. (2019)		4392	Men who have sex with men	Had group sex	No had group sex	HIV Infection

Table 7 presents a comprehensive overview of seven primary studies that have explored the impact of not using condoms on the risk of HIV infection among men who have sex with men. These studies employed a cross-sectional study design, which enables the analysis of the association between condom non-use and HIV infection risk at a single point in time.

Table 7. Description of the primary study meta-analysis for the effect of not using condoms on the risk of HIV infection in men who have sex with men

Author (Year)	aOR	95%Cl	
		Lower Limit	Upper Limit
Xu et al. (2011)	5.70	1.30	24.99
Chen et al. (2018)	1.50	1.01	2.25
Dai et al. (2017)	1.19	0.55	2.57
Ishungisa et al.(2020)	1.50	0.70	3.21
Xiao et al. (2010)	0.80	0.20	3.20
Mmbaga et al.(2017)	3.20	1.40	7.31
Silva et al. (2020)	1.10	0.82	1.69

Figure 3 of the forest plot shows that not using condoms is at risk of HIV infection in men who have sex with men and that the effect is statistically significant. Men who have sex with men who do not use condoms have a 1.35 times higher risk of HIV infection compared to using condoms (aOR= 1.35; CI 95%= 1.10 to 1.65; p = 0.004). The forest plot image also shows the heterogeneity between the low effects (I^2 = 44% and p = 0.004). Thus, the calculation of the average effect is carried out using the fixed effect model approach.

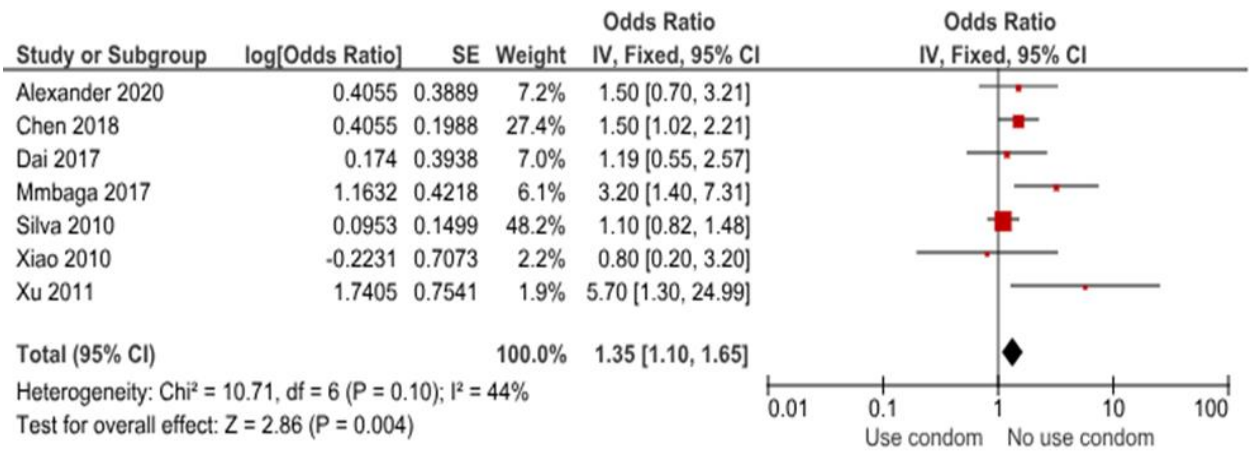

Figure 3. Forest plot of condom use with HIV infection

Figure 4 illustrates a funnel plot showing the distribution of effect estimates across the included studies. The data points are relatively well-balanced on both the right and left sides of the vertical line representing the average effect size. This symmetry in the funnel plot suggests that there is no significant evidence of publication bias, as the distribution does not show an over-representation of studies on one side of the plot. Consequently, the findings are likely to be robust and not influenced by selective reporting or omission of studies.

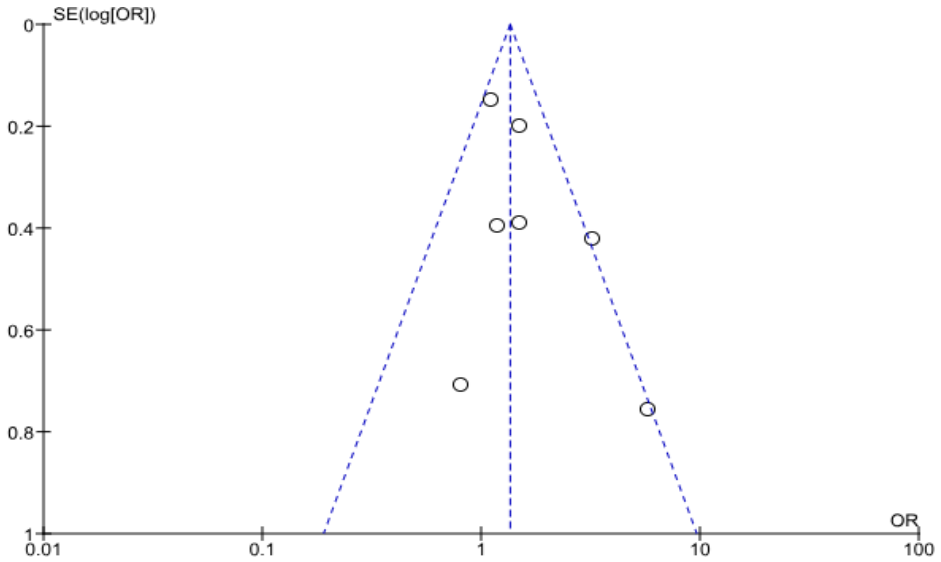

Figure 4. Funnel plot of the effect of condom use on the risk of HIV infection in men who have sex with men

Table 8 provides a detailed summary of the research findings, highlighting that a total of seven primary studies have investigated the relationship between anal bleeding and the risk of HIV infection among men who have sex with men. These studies were conducted using a cross-sectional study design, which allows for the examination of this association at a specific point in time, providing valuable insights into the potential risk factors and their prevalence within this population.

Table 8. Description of a meta-analysis primary study for the effect of anal bleeding on the risk of HIV infection in men who have sex with men

Author (Year)	aOR	95%Cl	
		Lower Limit	Upper Limit
Xu et al. (2011)	6.80	1.60	28.4
Zhang et al. (2020)	1.56	0.59	4.12
Mao et al. (2018)	2.60	1.50	4.51
Xu et al. (2016)	2.10	1.40	3.15
Lu et al. (2021)	1.90	1.00	3.61
Zufiiga dan Mueller (1996)	1.80	1.11	2.89
Silva et al. (2020)	1.29	0.82	2.02

Figure 5 of the forest plot shows that anal bleeding after sex is associated with the risk of HIV infection in men who have sex with men and the effect is statistically significant. Men who have anal bleeding after sex have a 1.89 times risk of being infected with HIV compared to those who do not have anal bleeding after sex (aOR= 1.89; CI 95%= 1.53 to 2.34); p < 0.001). The forest plot also showed heterogeneity between low effects (I^2 = 20% and p = 0.001). Thus, the calculation of the average effect is carried out using the fixed effect model approach.

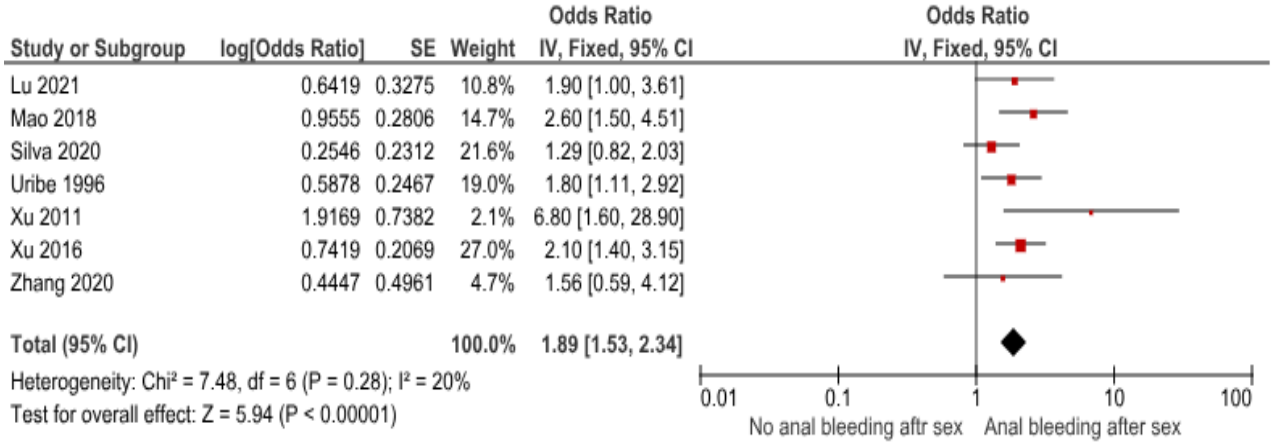

Figure 5. Forest plot of the effect of anal bleeding on the risk of HIV infection in men who have sex with men

Figure 6 presents a funnel plot about the distribution of the estimated effects of anal sex on the risk of HIV infection in men who have sex with men. The funnel plot presents that in each study it is more or less balanced to the right and left of the average vertical line. Thus, the funnel plot does not show any publication bias.

Table 9 provides a detailed summary of seven primary studies that examined the relationship between participation in sex groups and the risk of HIV infection among men who have sex with men. These studies were conducted using cross-sectional study designs, allowing for the assessment of the association between group sexual behavior and HIV infection risk at a specific point in time. The findings offer important insights into how group sexual activities may contribute to the transmission of HIV within this population, highlighting the potential need for targeted preventive interventions and education to address these risk behaviors effectively.

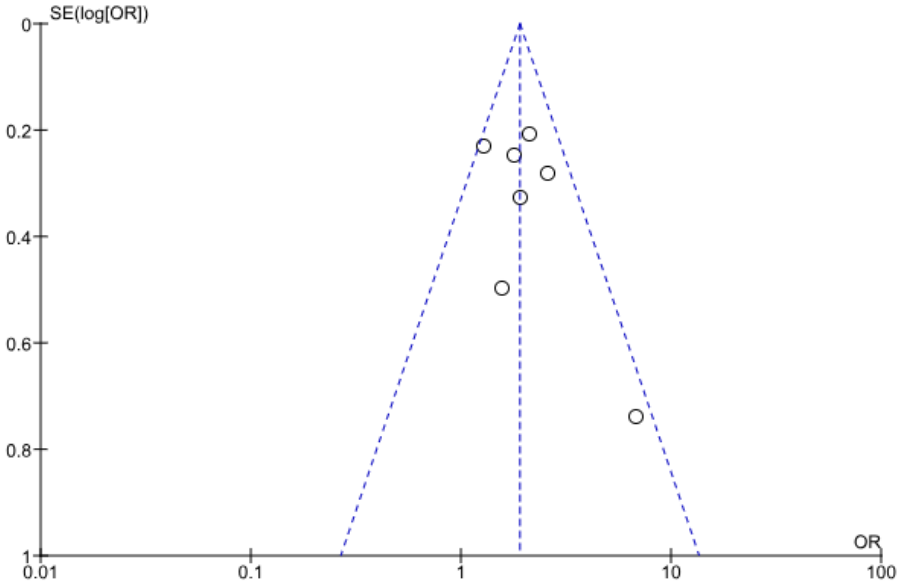

Figure 6. Funnel plot of the effect of anal bleeding on the risk of HIV infection in men who have sex with men

Table 9. Description of the primary study meta-analysis for men of the effect of group sex on the risk of HIV infection in men who have sex with men

Author (Year)	aOR	95%Cl	
		Lower Limit	Upper Limit
Qin et al. (2023)	2.35	1.06	5.17
Ishungisa et al. (2020)	3.40	1.70	6.80
Wei et al. (2019)	2.46	0.81	7.22
Mwaniki et al. (2023)	0.90	0.20	4.05
Mmbaga et al. (2017)	3.10	1.20	8.01
Zheng et al. (2020)	0.89	0.42	2.31
Lu et al. (2021)	3.40	1.20	9.63

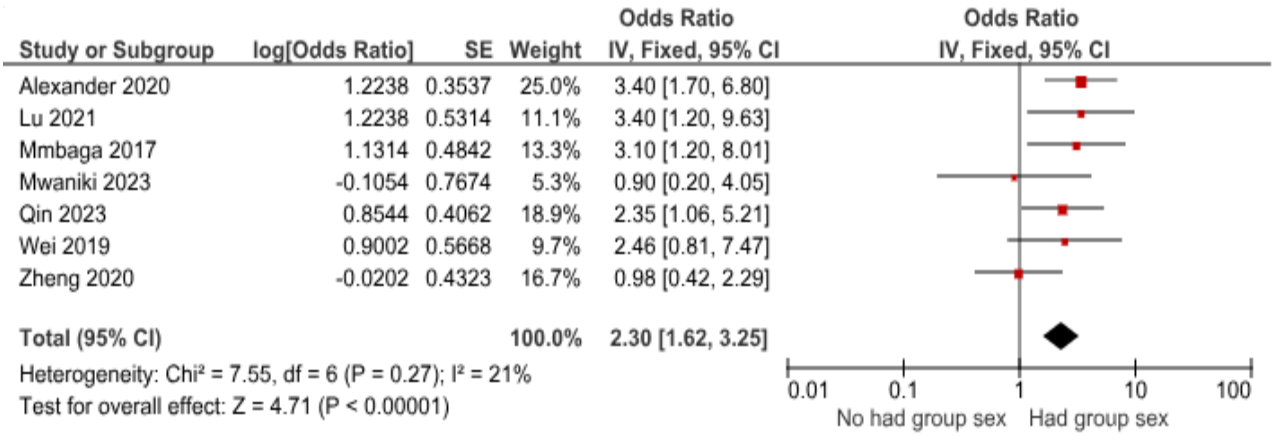

Figure 7. Forest plot of the effect of group sex on the risk of HIV infection in men who have sex with men

Figure 7 of the forest plot shows that those who have sex groups are at risk of HIV infection in men who have sex with men and the influence is statistically

significant. Men who have sex groups have a 2.30 times higher risk of HIV infection compared to those who do not have sex groups (aOR= 2.30; CI 95%= 1.62 to 3.25); p < 0.001). The forest plot also showed low heterogeneity between effects (I^2= 27%). Thus, the calculation of the average effect is carried out using the fixed effect model approach.

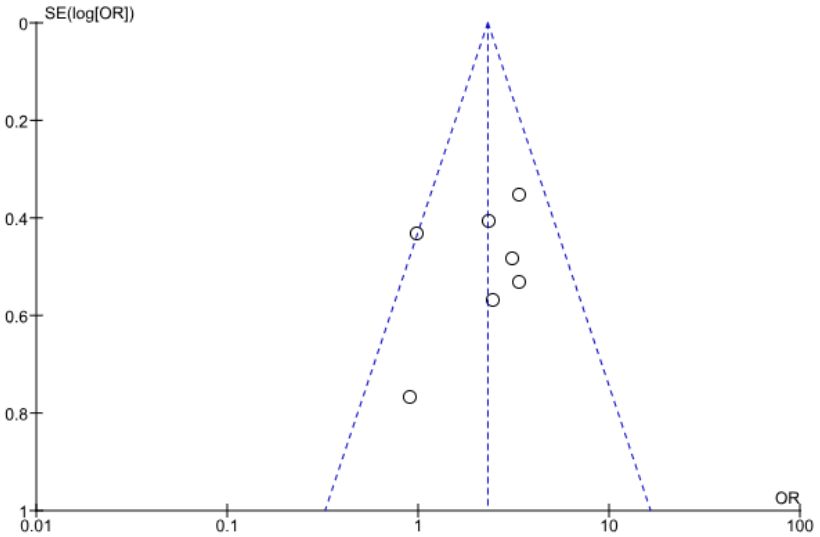

Figure 8. Funnel plot of the effect of group sex on the risk of HIV infection in men who have sex with men

Figure 8 shows a funnel plot about the distribution of the estimated effect of group sex on the risk of HIV infection in men who like men. The funnel plot shows the distribution of the study more on the right than to the left of the average vertical line, indicating the presence of publication bias. The distribution of estimates is more on the right than on the left, this is the same as the location of the diamond shape which is also to the right of the zero hypothesis, so the publication bias tends to overestimate the actual effect (overestimate).

DISCUSSION

1. Condom use with HIV infection

There are 7 articles from several countries used to measure the magnitude of the effect of condom use on HIV infection. The article has a cross-sectional study design. Studies have shown that there is a significant association between not using a condom during sex and HIV infection.

The HIV-positive rate increases as the frequency of condom use decreases from consistent use to never having anal sex with a man (Qin et al., 2023). The use of condoms during anal sex plays a role in reducing the prevalence of HIV among MSM (Ishungisa et al., 2020). The increased risk of HIV infection such as unprotected anal sex has been shown to be common in sexual intercourse with age differences among MSMS, and is significantly associated with unknown HIV infection (Ding et al., 2018).

Inconsistent condom use with male sex partners was found to be associated with HIV infection (Xu et al., 2011). The increase in the proportion of participants who always used condoms during anal sex with a man reflected concerns about the protective effects of condom use. In a study conducted by Qiang Chen in 2018, the use of condoms in anal sex was self-reported by participants. Therefore, some receptive subjects may be unsure about the use of condoms by their

insertive partners, or may be deceived by their insertive partners about the use of condoms during receptive anal relationships (Chen et al., 2018).

Therefore, the reported increase in condom use may be due to memory bias and reporting bias. On the other hand, the increasing prevalence of HIV among MSM means that subjects have more chances of having personal contact with an infected MSM, while the low rate of condom use is not high enough to offset the increased risk of infection (Chen et al., 2018).

2. Anal bleeding with HIV infection

There are 7 articles from several countries used to measure the magnitude of the effect of anal bleeding on HIV infection. The article has a cross-sectional study design. Studies have shown that there is a significant association between anal bleeding and HIV infection.

Anal bleeding is one of the symptoms of Sexually Transmitted Infections (STIs) that are usually self-reported by sufferers (Zhang et al., 2020). Anal bleeding is a common occurrence in the LSL group (Goddard et al., 2019). For people who have anal sex without a condom, the occurrence of damage to the rectal mucosa can increase the chances of HIV transmission. It is not surprising that rectal bleeding is found to be a potential risk factor for HIV infection (Xu et al., 2016)

Research conducted by Mao et al. (2018) found that bleeding in the anus plays a major role in HIV transmission among men who have sex with men. In addition, the incidence of bleeding in the anus is more common among men who have sex with men in the age range of 20-22 years. Early intervention to prevent anal bleeding is necessary and is likely to have a significant impact on preventing HIV infection.

3. Sex groups with HIV infection

There are 7 articles from several countries that are used to measure the magnitude of the influence of sex groups on HIV infection. The article has a cross-sectional study design. This study showed a significant relationship in the sex group with the incidence of HIV infection.

This study is in line with Mwaniki et al. (2023) who stated that a group of male college students who had sex with men in Nairobi, Kenya had a high HIV rate with a prevalence 6 times higher than young Kenyan men of the same age. The increased risk of HIV infection in sex groups and individuals who have multiple same-sex partners, often or sometimes in having sex without a condom so that these behaviors significantly increase the risk of HIV infection (Zheng et al., 2020).

A study conducted by Mmbage et al. (2017) showed that a group of men in Tanzania who have sex with men have a higher rate of HIV infection with an HIV prevalence of 17.4% or five times higher than men in general, risk factors for HIV infection in this group due to risky sexual behaviors such as unprotected sex, bisexual sexual practices, and alcohol use during sex.

AUTHOR CONTRIBUTION

La Karman Gojali acted as the main researcher with Dinda Nabila Silva Diba and Jihan Nabilla, who selected the topic, then conducted a search to collect data. Bhisma Murti and Elsa Tursina acted as supervisors in writing the script.

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CONFLICT OF INTEREST

There are no conflicts of interest.

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