

REVIEW ARTICLE

Thematic synthesis HIV prevention qualitative studies in men who have sex with men (MSM)

Síntesis temática de estudios cualitativos de prevención del VIH en hombres que tienen sexo con hombres (HSH)

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Abstract

Background:

Qualitative studies on HIV prevention strategies and methods among men who have sex with men (MSM) allow identify knowledge gaps and improve preventive actions.

Objective:

To make a thematic synthesis of the scientific productions that use the qualitative methodology in the strategies and methods of HIV prevention area among MSM.

Methods:

We conducted a literature review following the guidelines of the ENTREQ protocol. The analysis included 48 empirical studies published in Portuguese, English and Spanish between 2001 and 2018 available in the Medline, Embase, Scielo, Scopus, Bireme and Web of Science databases.

Results:

Where an increased production in the last six years and concentration in northern countries. Seven prevention methods were part of the study, with emphasis on pre-exposure prophylaxis, testing, condoms and behavioral strategies. The main topics discussed were stigma and support and care networks.

Conclusion:

we notice that an increasing production on prevention in the men who have sex with men segment results from the emergence of multiple preventive methods and strategies and their combined actions beyond the star role of condoms.



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Nothing

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Resumen

Antecedentes:

Los estudios cualitativos sobre estrategias y métodos de prevención del VIH entre hombres que tienen sexo con hombres ayudan a identificar lagunas de conocimiento y mejorar las acciones preventivas.

Objetivo:

Realizar una síntesis temática de las producciones científicas que utilizan la metodología cualitativa en las estrategias y métodos del área de prevención del VIH entre hombres homosexuales.

Métodos:

se realizó una revisión de la literatura siguiendo las pautas del protocolo ENTREQ. Se analizaron 48 estudios empíricos publicados en portugués, inglés y español entre 2001 y 2018 incluidos en las bases de datos Medline, Embase, Scielo, Scopus, Bireme y Web of Science.

Resultados:

La producción de artículos fue mayor en los últimos seis años, concentrados en los países del norte. Se abordaron siete métodos de prevención, con énfasis en profilaxis previa a la exposición, pruebas diagnósticas, condones y estrategias comportamentales. Los principales temas discutidos fueron el estigma y las redes de apoyo y atención.

Conclusión:

La creciente producción de prevención en el segmento hombres que tienen relaciones sexuales con hombres resulta de la aparición de múltiples métodos y estrategias preventivas y sus acciones combinadas más allá del protagonismo de los condones.

Remark

1) Why was this study conducted?

It was conducted to understand the scenario of HIV prevention among men who have sex with men.

2) What were the most relevant results of the study?

The amount of productions on the subject, the historical construction of prevention methods, the most used methods, as well as the main barriers and facilitators of access to HIV prevention strategies.

3) What do these results contribute?

These results contribute to know that there is a great concentration of research in some strategies, and that one of the greatest barriers is still stigma. It was also possible to realize that the presence of support or care networks serves as facilitators in their presence or barriers in their absence.

Introduction

In the history of the human immunodeficiency virus (HIV) epidemic, it is possible to observe that certain social segments were more affected than others. In particular, homosexuals and men who have sex with men (MSM), sex workers (SW), transgender people, people who inject drugs (PID) and people in prison or under seclusion of another kind. These segments have been designated by the World Health Organization (WHO) as “key population”¹, since they are strategic to achieve greater control of the epidemic in the world.

Research has shown that HIV prevalence in these populations is much higher than in the general population. For example, MSM have an HIV prevalence of between 6.1 and 6.6% in Europe and more than 25.4% in the Caribbean region² and 18.4% in Brazil³. Moreover, recent data show a continuous progress of the epidemic in these populations, even in regions that had already registered a decrease in incidence rates in these social segments¹.

With the emergence of the so-called “multiple prevention strategies” or “combined prevention”⁴, the current HIV prevention scenario is marked by increasing optimism^{5,6} in which combined prevention represents an increase in prevention possibilities in different situations that present a potential risk of HIV infection. However, a key question has been raised for managers, health professionals and researchers: how to articulate, within the framework of prevention, the joint provision of new prevention strategies, including antiretrovirals, more traditional strategies, psychosocial and behavioural interventions, and structural interventions⁴⁻⁷ (Table 1).

Considering combined prevention, the Pan American Health Organization (PAHO) recommends several actions for key populations in Latin America and the Caribbean: diagnostic tests, counselling, diagnosis and treatment of sexually transmitted infections (STIs), pre-exposure prophylaxis (PrEP), post-exposure prophylaxis (PEP), condoms and lubricants, antiretroviral treatment (ART) for HIV-positive people, peer education and sexual information and education. Among these, pharmacological interventions have the lowest coverage in the countries of the region, where ART is offered in 45% of countries, PEP in 39% and PrEP in only 6% of them⁷.

Considering the aspects that lead MSM to be more exposed to HIV infection, having greater difficulties in accessing supplies and services and being a victim of stigma and homophobia stand out. Given this, to advance policies to combat the epidemic, a better understanding of these issues is required⁸⁻¹⁰ with the consequent incorporation and management of new prevention methods and strategies.

The literature of studies with a qualitative methodological approach has sought to understand the dynamics of the use of preventive methods and strategies in MSM in recent decades. Research has considered different contexts including affective-sexual relationships and government community interventions. They have also studied the meanings and experiences of MSM related to risk and prevention, as well as to access and use of health services^{11,12}.

Systematic review is an important technology for evaluation of evidence-based scientific policies and practices. Systematic review studies use rigorous and explicit methods to gather the results of primary research providing reliable answers to specific questions¹³. This manuscript is part of this type of study. The thematic synthesis, chosen among other types of synthesis for qualitative studies, consists in identifying the important or recurring themes in the primary empirical studies. Each of these topics is presented in a structured way so that synthesis and interpretations of each point can be extracted and then articulated with each other. The thematic synthesis seeks to increase the transparency and reliability of the topics, by grouping the studies according to their characteristics, with the quantification of the qualitative results and, mainly, by compiling the findings according to the relevant and recurring issues^{13,14}.

The construction of a critical view of the scientific production on the proposed aspect provides a deeper understanding of how preventive actions have been incorporated in the MSM population during the years of the epidemic, and about the challenges to consolidate a new HIV prevention scenario that incorporates recently developed methods and strategies for

Table 1. Classification of prevention strategies and methods for thematic synthesis.

Types of prevention	Strategies and methods
Use of antiretrovirals	Treatment as Prevention (TP); Pre-Exposure Prophylaxis (PrEP); Post-Exposure Prophylaxis (PEP)
Traditionals	Condoms; HIV Diagnostic Tests
Psychosocial and behavioural interventions	Conformation of Support Groups; Peers education
Structural interventions	Reduction of stigma and social inequalities

this segment of the population. In this way, this article aims to make a thematic synthesis of the scientific productions that use the qualitative methodology in the field of HIV prevention methods and strategies among MSM.

Materials and Methods

Thematic synthesis¹³⁻¹⁵ was performed using references from the ENTREQ protocol¹⁶ and, when necessary from the PRISMA¹⁷, Cochrane¹⁸ and New York University protocols¹⁹. Studies published in English, Spanish and Portuguese were included, which were found in six databases of information sources: Medline, Embase, SciELO, Scopus, Bireme and Web of Science.

Studies that used empirical material in the analysis of HIV prevention methods and strategies, and qualitative data production techniques such as narratives, in-depth interviews, focus groups, direct observations, etc, were included in the review. The participants belonged to the MSM population, and in some studies, there were participants from other populations such as transsexuals and psychoactive substances users. The documents were not excluded by geographical location or year of publication, however, studies conducted exclusively with children and adolescents or that have analyzed occupational exposure or sexual violence were excluded.

Publications were searched using search directories in the information source databases. Using the keywords or the best search terms, such as “Men who have sex with men”, “Bisexual *”, “Prevention and control”, a specific search directory was created for each database. The asterisk symbol (*) allowed to include in the search numerous possible endings of the radicals sought and, therefore, cover the full range of possible terminations in the databases.

The searches in the databases were completed in January 2018 and the articles found were managed with the EndNote® reference manager and with spreadsheets. Information about authorship, year of publication, original title, study location, population studied, methodological approach used and summary in the original language were extracted from the publications. Subsequently, the works were selected using the following procedures performed sequentially: a) elimination of duplicates; b) evaluation of titles and abstracts; c) complete reading of the documents. The final selection of the studies included in the review was made in accordance with the guidelines and recommendations of the protocols mentioned above. For this selection, two independent and experienced investigators read the titles and abstracts, and when there was disagreement, and in order to decide, they used the arbitration of a third investigator.

Results

584 articles were identified, of which 114 (19.5%) were duplicated and 253 (43.3%) were discarded because they did not correspond to the MSM segment (196; 33.6%), did not use empirical data (47; 8.0%) and presented insufficient information or unclear information in the title or summary (10; 1.7%). In total, 217 (37.1%) articles were completely read and, of these, 169 (28.9%) were discarded for not complying with the inclusion criteria. Finally, 48 articles (8.2%) were selected and included for the analysis (Fig. 1).

The results are presented at two different times: the first is a demonstration of the general characteristics of the 48 selected studies and the second is the compilation of the most relevant and recurring themes of the analyzed production. Of the 48 selected studies for this synthesis, 24 (50%) were conducted in North America (mainly the United States)²⁰⁻⁴³, eight (16.7%) in

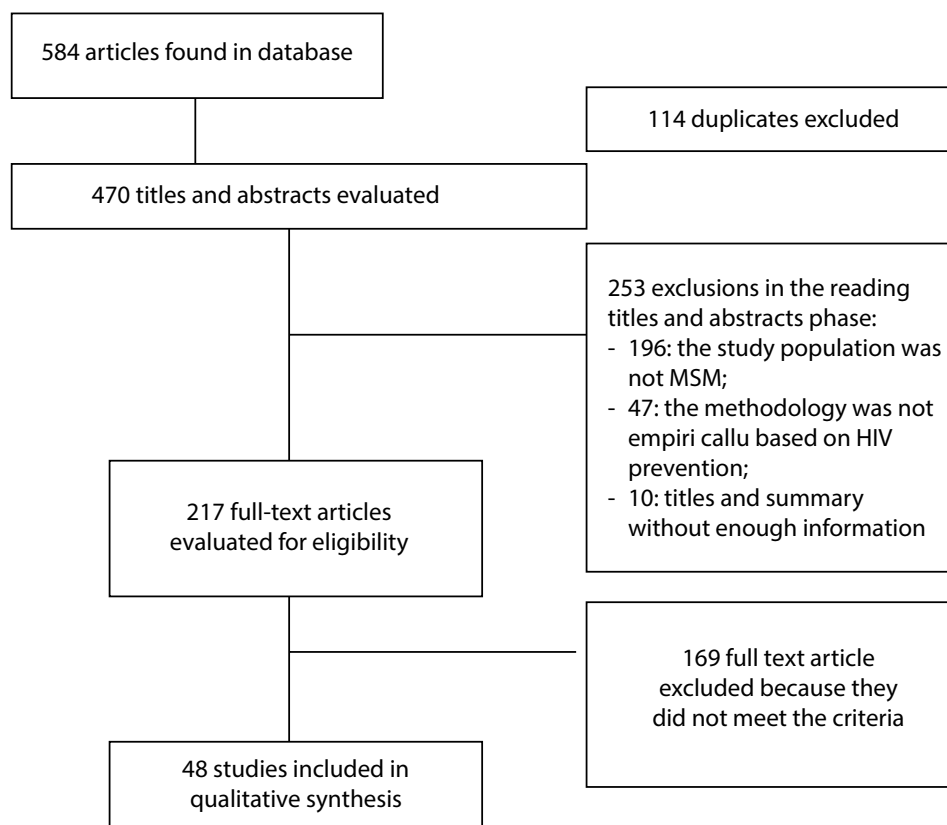


Figure 1. Flowchart of the process of selecting items included in the review. Source: self-made.

Europe⁴⁴⁻⁵¹, five (10.4%) in Africa⁵²⁻⁵⁶, four (8.3%) in Oceania⁵⁷⁻⁶⁰, four (8.3%) in South and Central America⁶¹⁻⁶⁴ and three (6.2%) in Asia⁶⁵⁻⁶⁷ (Table 2).

It is worth noting that there are no studies conducted in Africa and South America that evaluate preventive methods based on the use of antiretrovirals (ARV), such as PEP, PrEP and treatment as prevention (TP), although the countries of those regions have already incorporated these methods.

Of the 48 studies previously mentioned, 38 dealt exclusively with the population of MSM without HIV, and of these, eight studies included ethnic markers^{25,29,33,38,40,42,43,52} and three of them included generational markers^{26,45,48}. Four other studies included populations of MSM and HIV-positive people within the dynamics of serodiscordant relationships. The remaining six studies included, in addition to the MSM population, other populations, such as transgender women, drug users and heterosexual women (Table 3).

Table 2. Distribution of selected articles by continent.

Región	References
North America	Beougher <i>et al.</i> , 2014 ²⁰ ; Bird <i>et al.</i> , 2017 ²¹ ; Mitchell <i>et al.</i> , 2016 ²³ , 2017 ²² ; Brooks <i>et al.</i> , 2011 ²⁴ ; Nanin <i>et al.</i> , 2009 ²⁵ ; Storholm <i>et al.</i> , 2017 ²⁶ ; Taylor <i>et al.</i> , 2014 ²⁷ ; 2012 ²⁸ ; Campbell <i>et al.</i> , 2014 ²⁹ ; Hojilla <i>et al.</i> , 2016 ³⁰ ; Collinset <i>et al.</i> , 2017 ³¹ ; Grov <i>et al.</i> , 2013 ³² ; Elwood <i>et al.</i> , 2003 ³³ ; Grace <i>et al.</i> , 2014 ³⁵ , 2018 ³⁴ ; Mimiaga <i>et al.</i> , 2014 ³⁶ ; Hoff <i>et al.</i> , 2015 ³⁷ ; Holloway <i>et al.</i> , 2017 ³⁸ ; Holmes <i>et al.</i> , 2008 ⁽³⁹⁾ ; Hussen <i>et al.</i> , 2013 ⁴⁰ ; Martinez <i>et al.</i> , 2016 ⁴¹ , 2017 ⁴² ; Medline <i>et al.</i> , 2017 ⁴³
Europe	Bil <i>et al.</i> , 2016 ⁴⁴ ; Boydell <i>et al.</i> , 2017 ⁴⁵ ; Gredig <i>et al.</i> , 2016 ⁽⁴⁶⁾ ; Grov, 2017 ⁴⁷ ; Middelthun, 2001 ⁴⁸ ; Sayer <i>et al.</i> , 2009 ⁴⁹ ; Witzel <i>et al.</i> , 2017 ⁵⁰ ; Young <i>et al.</i> , 2016 ⁵¹
Africa	Lee <i>et al.</i> , 2017 ⁵² ; Maina <i>et al.</i> , 2018 ⁵³ ; Siegler <i>et al.</i> , 2015 ⁵⁴ ; Taegtmeier <i>et al.</i> , 2013 ⁵⁵ ; Wagner <i>et al.</i> , 2012 ⁵⁶
Oceania	Körner <i>et al.</i> , 2005a ⁵⁷ , 2005b ⁵⁹ , 2006 ⁵⁸ ; Neville <i>et al.</i> , 2016 ⁶⁰
South and Central America	Blas <i>et al.</i> , 2013 ⁶¹ ; Gonzales <i>et al.</i> , 2012 ⁶² ; Logie <i>et al.</i> , 2017 ⁶³ ; Reisen <i>et al.</i> , 2014 ⁶⁴
Asia	Bourne <i>et al.</i> , 2017 ⁶⁵ ; Newman; Rongprakhon; Tepjan, 2013 ⁶⁶ ; Wei <i>et al.</i> , 2014 ⁶⁷

Table 3. Studies' population.

Population	References
MSM without HIV	Beougher <i>et al</i> 2014 ²⁰ ; Bird <i>et al</i> 2017 ²¹ ; Grov <i>et al</i> 2013 ³² , 2017 ⁴⁷ ; Holmes <i>et al</i> 2008 ³⁹ ; Taylor <i>et al</i> 2014 ²⁷ ; Brooks <i>et al</i> 2012 ²⁸ ; Collins <i>et al</i> 2017 ³¹ ; Grace <i>et al</i> 2018 ³⁴ , 2014(35); Bil <i>et al</i> 2016 ⁴⁴ ; Gredig <i>et al</i> 2016 ⁴⁶ ; Sayer <i>et al</i> 2009 ⁴⁹ ; Witzel <i>et al</i> 2017 ⁵⁰ ; Maina <i>et al</i> 2018 ⁵³ ; Siegler <i>et al</i> 2015 ⁵⁴ ; Taegt-meyer <i>et al</i> 2013 ⁵⁵ ; Wagner <i>et al</i> 2012 ⁵⁶ ; Körner <i>et al.</i> , 2005a ⁵⁷ , 2005b ⁵⁹ , 2006 ⁵⁸ ; Neville <i>et al.</i> , 2016 ⁶⁰ ; Blas <i>et al</i> 2013 ⁶¹ ; Gonzales <i>et al</i> 2012 ⁶² ; Reisen <i>et al</i> 2014 ⁶⁴ ; Bourne <i>et al</i> 2017 ⁶⁵ ; Wei <i>et al</i> 2014 ⁶⁷ ; Holloway <i>et al</i> 2017 ³⁸ ; Hussien <i>et al</i> 2013 ⁴⁰ ; Martinez <i>et al</i> 2017 ⁴² ; Medline <i>et al</i> 2017 ⁴³ ; Nanin <i>et al</i> 2009 ²⁵ ; Campbell <i>et al</i> 2014 ²⁹ ; Elwood <i>et al</i> 2003 ³³ ; Lee <i>et al</i> 2017 ⁵² ; Storholm <i>et al</i> 2017 ²⁶ ; Boydell <i>et al</i> 2017 ⁴⁵ ; Middelthon <i>et al</i> 2001 ⁴⁸
MSM and HIV-positive patients	Mitchell <i>et al</i> 2017 ²² , 2016 ²³ ; Brooks <i>et al</i> 2011 ²⁴ ; Hoff <i>et al</i> 2015 ³⁷
MSM and transgender women	Hojilla <i>et al</i> 2016 ³⁰ ; Martinez <i>et al</i> 2016 ⁴¹ ; Logie <i>et al</i> 2017 ⁶³ ; Newman <i>et al</i> 2013 ⁶⁶
MSM and drug users	Mimiaga <i>et al</i> 2014 ³⁶
MSM and heterosexual women	Young <i>et al</i> 2016 ⁵¹

In the set of studies, seven methods and strategies for the prevention of HIV infection were addressed, with a predominance of PrEP, PEP, condoms, diagnostic tests, behavioural strategies, and treatments such as prevention and circumcision. Of the above, three are methods based on ARV (PEP, PrEP, treatment as prevention). An eighth group was defined as “others”, which included the only article⁶⁶ that did not fall into any of the previous seven categories, related to the introduction of a microbicide gel in a population of MSM and transsexuals in Thailand. There is a predominance of studies on PrEP (16 studies), published mainly in 2010, the period that coincides with the launch of the first results of safety and efficacy of the method⁶⁸. In four of them, PrEP is analyzed together with other strategies^{37,41,47,51}.

Thirteen studies addressed the HIV test strategy, one of which appears along with the TP strategy⁶⁷ and another with the condom⁵⁶. Also notable is the number of studies involving diagnostic tests in the last five years, five of them published in 2017^{22,43,45,50,63}.

Ten studies addressed the behavioural and psychosocial interventions approach as a prevention strategy, which includes strategies for risk reduction, such as agreements with sexual partners and social protection, in addition to the use of a prevention method. These studies have gained prominence in the last ten years, and six of them^{21,38,41,42,47,53} have been published as of 2016. This suggests that, in parallel to the research focused on preventive methods, there is a concern to understand other dimensions of prevention that have more to do with different experiences and needs of the individuals.

The condom, considered the prevention method with the greatest investment in public health and in the homosexual community, has remained the researchers' focus of attention over the years, gathering nine articles. It is noteworthy that the first study included in the analysis was published in 2001.

PEP, in turn, appears in four studies, the first being published in 2005 and the last in 2009. Although PEP is the oldest method among those using ARV and has been widely studied by quantitative approaches⁶⁹⁻⁷⁴, qualitative research has a limited number for the MSM population.

TP appears tangentially in three studies and only one study addressed circumcision. The low interest in the issue of circumcision in the MSM population might be related to the low effectiveness of the method in male sexual intercourse or penetrating anal practices⁷⁵⁻⁷⁷. Detailed information about the studies is found in Table 4.

Table 5 presents the chronology of the study publications according to prevention methods. Studies published until 2006 focused on condoms^{33,48} and PEP^{57,59}. As of this period, there is a diversification of production, which coincides with the start of studies related to diagnostic tests and PrEP^{23,26,27,30,31,34,36,37,41,44,46,51,65}. Furthermore, behavioural and psychosocial studies increase^{21,29,35,38,39,41,42,47,53,55}, which suggests a greater influence of the “combined prevention” paradigm⁷⁸.

Table 4. Methods and strategies for the prevention of HIV infection.

Prevention methods	References
PrEP	Mitchell <i>et al</i> 2016 ²³ ; Brooks <i>et al</i> 2011 ²⁴ , 2012 ²⁸ ; Storholm <i>et al</i> 2017 ²⁶ ; Taylor <i>et al</i> 2014 ²⁷ ; Hojilla <i>et al</i> 2016 ³⁰ ; Collins <i>et al</i> 2017 ³¹ ; Grace <i>et al</i> 2018 ³⁴ ; Mimiaga <i>et al</i> 2014 ³⁶ ; Hoff <i>et al</i> 2015 ³⁷ ; Martinez <i>et al</i> 2017 ⁴² ; Bil <i>et al</i> 2016 ⁴⁴ ; Gredig <i>et al</i> 2016 ⁴⁶ ; Grov 2017 ⁴⁷ ; Witzel <i>et al</i> 2017 ⁵⁰ ; Bourne <i>et al</i> 2017 ⁶⁵
Diagnostic tests	Beougher <i>et al</i> 2014 ²⁰ ; Mitchell <i>et al</i> 2017 ²² ; Nanin <i>et al</i> 2009 ²⁵ ; Hussen <i>et al</i> 2013 ⁴⁰ ; Medline <i>et al</i> 2017 ⁴³ ; Boydell <i>et al</i> 2017 ⁴⁵ ; Witzel <i>et al</i> 2017 ⁵⁰ ; Siegler <i>et al</i> 2015 ⁵⁴ ; Wagner <i>et al</i> 2012 ⁵⁶ ; Blas <i>et al</i> 2013 ⁶¹ ; Logie <i>et al</i> 2017 ⁶³ ; Reisen <i>et al</i> 2014 ⁶⁴ ; Wei <i>et al</i> 2014 ⁶⁷
Behavioural strategies	Bird <i>et al</i> 2017 ²¹ ; Campbell <i>et al</i> 2014 ²⁹ ; Grace <i>et al</i> 2014 ³⁵ ; Holloway <i>et al</i> 2017 ³⁸ ; Holmes <i>et al</i> 2018 ³⁹ ; Martinez <i>et al</i> 2016 ⁴¹ ; 2017 ⁴² ; Grov 2017 ⁴⁷ ; Maina <i>et al</i> 2018 ⁵³ ; Taegtmeyer <i>et al</i> 2013 ⁵⁵
Condoms	Campbell <i>et al</i> 2014 ²⁹ ; Grov <i>et al</i> 2013 ³² ; Elwood <i>et al</i> 2003 ³³ ; Hoff <i>et al</i> 2015 ³⁷ ; Grov 2017 ⁴⁷ ; Middelthon <i>et al</i> 2001 ⁴⁸ ; Lee <i>et al</i> 2017 ⁵² ; Wagner <i>et al</i> 2012 ⁵⁶ ; Neville <i>et al</i> 2016 ⁶⁰
PEP	Sayer <i>et al</i> 2009 ⁴⁹ ; Körner <i>et al.</i> , 2005a ⁵⁷ , 2005b ⁵⁹ , 2006 ⁵⁸
Treatment as prevention	Grov 2017 ⁴⁷ ; Young <i>et al</i> 2016 ⁵¹ ; Wei <i>et al</i> 2014 ⁶⁷
Circumcision	Gonzales <i>et al</i> 2012 ⁶²

Issues related to the production of PrEP, diagnostic tests, condom and behavior strategy.

For the thematic analysis of the production that was considered, we limited ourselves to the methods and strategies that stood out according to number of publications (42 out of the 48 productions analyzed), namely: PrEP, diagnostic tests, condoms and prevention strategies with behavioural and psychosocial interventions. The analysis of these issues was based on the perspective of combined prevention.

In turn, combined prevention has been recurring in numerous studies and manuals on HIV prevention published by governments or multilateral agencies⁷⁸⁻⁸³. This approach has been used to reflect the possibilities that can be combined, not only in the sense of grouping, but also when referring to the notion of dialogue and agreement in order to cover the widest possible range of protection against HIV. In this model, prevention strategies based on the promotion of the use of preventive methods and behavioural and psychosocial interventions are articulated with structural interventions, in the form of public policies and legal frameworks. This approach has preferably targeted key populations^{79,82,83}.

The main topics discussed in the studies on the four prevention methods were: support networks, care networks and stigma, followed by the financial cost of access to PrEP and the fear of a positive HIV test result (Table 6).

In the studies the service networks⁸⁴⁻⁸⁶ have been defined as formalized services that provide care, guidance and education to the direct users served or their surroundings. The deficiency or absence of these networks is highlighted in the studies as an important barrier to prevention.

The highest frequency of studies that address the care network occurs in the analysis of diagnostic tests, PrEP, behavioural and psychosocial strategies and the condom. They also appear in papers that discuss the combination of two or more prevention methods^{29,47,52}. Among the 16 studies that address this issue, six^{25,40,47,61,64,67} highlight different aspects that characterize the barriers observed within the care networks, such as: stigma, fear, insecurity regarding the use and lack of preparation, the services to attend the participants and the promotion of the methods. The studies report that the communication strategies that positively influence the adoption of certain methods are the facilitators of access to the care networks, and that is how the studies dealing with support networks use different theoretical approaches to support the topic. Regarding this specificity, the analyzed production converges by highlighting the support network as an important facilitator for the adoption of different prevention methods, being a strategy with high potential to promote the use of preventive methods⁸⁷⁻⁸⁹.

We found 12 studies that had an approach based on the perspective of support networks. Of particular interest are the studies that addressed the combination of two or more prevention methods, behavioural and psychosocial strategies, diagnostic tests, PrEP and condoms. In half

Table 5. Chronology of publications of selected studies until January 2018.

More than 10 years ago		2001		2003		2005		2006		
		Condom and Diagnostic Tests ⁴⁸		Condom ³³		PEP ^{57,59}		PEP ⁵⁸		
From 10 to 5 years ago	2008	2009		2011		2012		2013		
	Behavioral and Psychosocial ³⁹	Diagnostic tests ²⁵		PrEP ²⁴		PrEP ²⁸		Diagnostic tests ^{40,61}		
		PEP ⁽⁴⁹⁾				Circumcision ⁶²		Condom ³²		
						Condom and Diagnostic Tests ⁵⁶		Others ⁶⁶		
						Behavioral and Psychosocial ⁵⁵				
								Behavioral and Psychosocial ⁵⁵		
From 5 years ago	2014	2015		2016		2017		2018		
	Diagnostic tests ^{20,64}	Condom and PrEP ³⁷		PrEP ^{23,30,44,46}		Behavioral and Psychosocial ^{21,42}		PrEP ³⁴		
	Behavioral and Psychosocial ³⁵	Diagnostic tests ⁵⁴		PrEP and Behavioural and Psychosocial ⁴¹		PrEP ^{26,31,65}		Behavioural and Psychosocial ⁵³		
	PrEP ^{27,36}				Condom ⁶⁰		Diagnostic tests ^{22,43,45,50,63}			
	Diagnostic tests and TP ⁶⁷				PrEP and TP ⁵¹		Condom, Behavioral and Psychosocial y PrEP ⁴⁷			
	Behavioral and Psychosocial, Condom, Diagnostic tests ²⁹						Behavioral and Psychosocial and Others ³⁸			
							Condom and others ⁵²			

of them, barriers similar to those found in everything related to care networks were observed. As a facilitator of access to methods in support networks, social and educational information policies appeared to combat stigma and prejudice.

Stigma is addressed in a multifaceted manner in the 18 documents that investigated the issue. Most of these studies were related to the stigma of discovering HIV infection, homophobia, and especially, with studies that addressed behavioural diagnostic strategies and tests. Regarding the diagnostic tests, the lack of preparation of the health service to adequately receive the MSM population is highlighted^{25,52,63,64}. Another form that arises in studies that address stigma is the endogenous one^{31,34,36,65}, where the MSM community imposes sexual morality and rejects individuals who deviate from that morality. This discussion is linked to the use of PrEP, since some labels such as “promiscuity” are used to name the users of methods in certain MSM communities. Of these studies, only one²⁶ highlights a reduction in HIV-associated stigma in MSM who use PrEP.

Studies that address the financial cost of one or more prevention methods, particularly PrEP, show the excessive cost for potential users in countries where one or more methods are not offered free of charge through public health policies, hindering the continuous and consistent access and use^{23,24,27,34,37,44,46,47,63,67}. In turn, the fear associated with a possible diagnosis of HIV infection appears as a barrier to the access to diagnostic tests^{25,40,43,56,61,63,64,67}. It is important to note that the results of the studies that address the diagnostic tests and the cost of the methods vary according to the structures, care networks and free services in the different countries or places where the studies are conducted.

Final considerations

Our thematic synthesis presented a critical view of the qualitative approach studies on HIV prevention in the MSM segment, highlighting the production characteristics in terms of time and geographic distribution, according to the prevention strategies and methods incorporated in the studies. The most frequent topics that were prioritized in the studies that dealt with

Table 6. Main topics discussed in the studies.

Main topics	References
Service networks	Mitchell <i>et al</i> 2017 ²² ; Nanin <i>et al</i> 2009 ²⁵ ; Hojilla <i>et al</i> 2016 ³⁰ ; Elwood <i>et al</i> 2003 ³³ ; Grace <i>et al</i> 2014 ³⁵ ; Hussen <i>et al</i> 2013 ⁴⁰ ; Martinez <i>et al</i> 2017 ⁴² ; Boydell <i>et al</i> 2017 ⁴⁵ ; Witzel <i>et al</i> 2017 ⁵⁰ ; Blas <i>et al</i> 2013 ⁶¹ ; Logie <i>et al</i> 2017 ⁶³ ; Reisen <i>et al</i> 2014 ⁶⁴ ; Bourne <i>et al</i> 2017 ⁶⁵
Support networks	Hojilla <i>et al</i> 2016 ³⁰ ; Elwood <i>et al</i> 2003 ³³ ; Holloway <i>et al</i> 2017 ³⁸ ; Martinez <i>et al</i> 2016 ⁴¹ ; 2017 ⁴² ; Boydell <i>et al</i> 2017 ⁴⁵ ; Grov 2017 ⁽⁴⁷⁾ ; Maina <i>et al</i> 2018 ⁵³ ; Taegtmeier <i>et al</i> 2013 ⁵⁵ ; Logie <i>et al</i> 2017 ⁶³ ; Reisen <i>et al</i> 2014 ⁶⁴ ; Wei <i>et al</i> 2014 ⁶⁷
Stigma	Nanin <i>et al</i> 2009 ²⁵ ; Storholm <i>et al</i> 2017 ²⁶ ; Collins <i>et al</i> 2017 ³¹ ; Grace <i>et al</i> 2018 ³⁴ ; Mimiaga <i>et al</i> 2014 ³⁶ ; Hussen <i>et al</i> 2013 ⁴⁰ ; Martinez <i>et al</i> 2016 ⁴¹ ; Medline <i>et al</i> 2017 ⁴³ ; Grov 2017 ⁴⁷ ; Young <i>et al</i> 2016 ⁵¹ ; Maina <i>et al</i> 2018 ⁵³ ; Taegtmeier <i>et al</i> 2013 ⁵⁵ ; Wagner <i>et al</i> 2012 ⁵⁶ ; Blas <i>et al</i> 2013 ⁶¹ ; Logie <i>et al</i> 2017 ⁶³ ; Reisen <i>et al</i> 2014 ⁶⁴ ; Bourne <i>et al</i> 2017 ⁶⁵ ; Wei <i>et al</i> 2014 ⁶⁷

PrEP, diagnostic tests, condoms and behavioural and psychological prevention strategies were highlighted. Our study highlighted the relevance of the efforts being made to reduce HIV exposure among the MSM segment, in the current context of the combined prevention strategy, whose challenge is to articulate the supply and joint promotion of prevention strategies and methods.

Regarding the characteristics of the 48 productions analyzed, studies in the northern countries, particularly in the United States and Europe, predominated. Most of the research was conducted exclusively with the MSM population, and there has been a tendency to increase production as of 2011, especially studies that articulate more than one prevention method or strategy. These data seem to reflect the emergence and diffusion of the combined prevention perspective promoted by international agencies such as WHO^{78,80} and PAHO⁷.

Considering that we are at the end of the fourth decade of the HIV epidemic and acquired immunodeficiency syndrome (AIDS), and that studies and interventions with the MSM population have been prominent since the beginning of the epidemic, it is important to note that in the first two decades of the epidemic there was scarce research for this specific segment of the population, with emphasis on prevention and with a qualitative methodological approach. A first observation is the possibility that in the first decades of the epidemic, the MSM segment was investigated on issues related to social representations of risk and living with HIV-positive people, interaction with antiretroviral drugs, the impact of the virus and stigma of AIDS in everyday life, sociability and sexual pleasure of these individuals^{90,91}. Secondly, and according to the production analyzed, the growth of qualitative studies on prevention methods and strategies among MSM, corresponds, in terms of temporal and geographical distribution, to the emergence of the availability of multiple methods and strategies, and to their combined actions, as a predominant method additional to condom use. As shown in this review, ARV-based methods represent a higher production in recent years. Researchers and funding agencies are interested in investigating the decision making of MSM using such methods, the meanings of the experience of use and the subjective factors related to their effectiveness^{47,52,63}.

In this sense, PrEP emerges as a method with great potential for prevention among the methods that use ARV and explains the significant number of publications that address the problems and the relevant criticisms to access and use, both individually and in public health, especially as of 2012. The work of Young *et al.*⁵¹, brings among its findings illustrative questions to think about the criticisms of PrEP, such as the one that argues that it has a great impact on public budgets. The highlights of the PrEP studies in recent years seem to derive from the relationship between different but related aspects, such as the studies linked to research that seek to deepen unanswered questions through clinical and epidemiological studies, such as the acceptability and the possibility of daily use, among others.

The emergence of methods based on antiretrovirals opens a wide area of interest, by changing the preventive approach and the potential impact on the epidemic, thus constituting a relevant field of study. Finally, the development and penetration of qualitative methodological designs in health studies, whether in mixed designs (qualitative and quantitative) or in studies that only produce qualitative data, is growing and consistent. Considering the initial studies on the relationship between HIV/AIDS and the MSM population, studies on combined prevention in this population have access to the experience developed in previous decades.

Observing the main issues addressed in the studies on the four most important methods in analyzed in this review (PrEP, diagnostic tests, condoms and behavioural and psychological prevention strategies), the themes of support and care networks and the stigma are highlighted. Unlike the first two, stigma remains central, constituting a broad social phenomenon in the field of HIV that manifests itself in multiple fields, from those related to private life to those related to the search for services and access to prevention strategies.

In summary, this review points out the limits and possibilities of HIV prevention among MSM as a segment immersed in social constructions and structural contexts that expand their historically known primary vulnerabilities, giving the possibility to discuss, understand, access and use different strategies. Prevention is conditioned by issues such as the access and the cost of health, family and generational problems, as well as possible actions to exclude the State, backed by institutionalized and prevalent stigma and by homophobia in societies⁹².

Finally, we consider that the incorporation and development of qualitative research in the field of knowledge production and practices in the prevention of HIV infection is of great importance. As the kind of research that addresses the individualities and subjectivities of human beings and collectivities, this methodological approach can be proposed to study HIV, giving importance, for example, to the ways in which individuals assess the risk of HIV, the forms to address AIDS stigma, how new prevention technologies based on the use of ARVs influence the construction of sexual identities and sexual practices, etc. Furthermore, qualitative research is a tool to recognize the different subjectivities of people in policies to address the epidemic and thus give these individuals the status of rights subjects. Given this, and considering the growing number of qualitative studies on HIV prevention in the MSM segment, the thematic synthesis review points to the state of production technique, pointing out knowledge gaps that deserve research, especially in the current scenario of prevention, and highlighting ways of social response and policies to reduce the risk of infection in this segment of the population historically affected by the epidemic.

The main limitation to construct this thematic synthesis was the restriction of the databases of sources of health information used to select the primary studies. These bases did not necessarily include works from other areas of knowledge such as psychology, sociology and anthropology. The productions of the so-called “gray literature” published outside conventional editorial channels such as reports, thesis, conference proceedings, technical standards, among others, were not part of these databases either.

References

1. WHO. Guidelines. Consolidated guidelines on HIV prevention, diagnosis, treatment and care for key populations. WHO; 2016.
2. Beyrer C, Baral SD, Van Griensven F, Goodreau SM, Chariyalertsak S, Wirtz AL, et al. Global epidemiology of HIV infection in men who have sex with men. *Lancet*. 2012; 380(9839): 367-377. doi:10.1016/S0140-6736(12)60821-6.
3. Kerr L, Kendall C, Guimarães MDC, Salani Mota R, Veras MA, Dourado I, et al. HIV prevalence among men who have sex with men in Brazil. *Medicine (Baltimore)*. 2018; 97(1S Suppl 1): S9-S15. doi: 10.1097/MD.00000000000010573.
4. Joint United Nations Program on HIV/AIDS (UNAIDS). 90-90-90 An ambitious treatment target to help end the AIDS epidemic. UNAIDS; 2014. http://www.unaids.org/sites/default/files/media_asset/90-90-90_en_0.pdf.
5. Nilo F. Gerenciamento de risco em tempos de novas tecnologias de prevenção na perspectiva de direitos humanos. *Bol ABIA*. 2015; 60:8-18.
6. De Luiz GM, Spink MJ. O gerenciamento dos riscos no cenário da aids: Estratégias adotadas por homens que fazem sexo com homens em parceria casual. *Athenea Digit*. 2013; 13(3): 39-56
7. PAHO Pan American Health Organization; UNAIDS Joint United Nations Program on HIV/AIDS. HIV Prevention in the Spotlight: An Analysis from the Perspective of the Health Sector in Latin America and the Caribbean 2017. PAHO; 2017. p. 88. Available at: <http://iris.paho.org/xmlui/bitstream/handle/123456789/34381/9789275119792-eng.pdf?sequence=6&isAllowed=y>

8. Mello L, Perilo M, Braz CA de, Pedrosa C. Políticas de saúde para lésbicas, gays, bissexuais, travestis e transexuais no Brasil: em busca de universalidade, integralidade e equidade. *Sex Salud y Soc* (Rio Janeiro). 2017; (9): 7-28. Doi: 10.1590/S1984-64872011000400002.
9. Santos EC, Calvetti PU, Rocha KB, Moura A, Barbosa LH, Hermel J. Percepção de Usuários Gays, Lésbicas, Bissexuais e Transgêneros, Transexuais e Travestis do Sistema Único de Saúde. *Interam J Psychol*. 2010; 44(2): 235-245.
10. Mayer KH, Bradford JB, Makadon HJ, Stall R, Goldhammer H, Landers S. Sexual and gender minority health: What we know and what needs to be done. *Am J Public Health*. 2008; 98(6): 989-995.
11. Turato ER. Métodos qualitativos e quantitativos na área da saúde: definições, diferenças e seus objetos de pesquisa. *Rev Saude Publica*. 2005;39(3):507-14.
12. Denzin NK, Lincoln YS. *The Sage Handbook of Qualitative Research*, 2nd ed. London: Sage Publication INC; 2006.
13. Sandelowski M, Barroso J. *Handbook for synthesizing qualitative research*. New York, NY: Springer Publishing Company; 2006.
14. Thomas J, Harden A. Methods for the thematic synthesis of qualitative research in systematic reviews. *BMC Med Res Methodol*. 2008; 8(1): 45.
15. Malterud K. Systematic text condensation: A strategy for qualitative analysis. *Scand J Public Health*. 2012; 40(8): 795-805. doi: 10.1177/1403494812465030.
16. Tong A, Flemming K, McInnes E, Oliver S, Craig J. Enhancing transparency in reporting the synthesis of qualitative research: ENTREQ. *BMC Med Res Methodol*. 2012; 12: 181. doi:10.1186/1471-2288-12-
17. Moher D, Liberati A, Tetzlaff J, Altman DG. Preferred reporting items for systematic reviews and meta-analyses: The PRISMA Statement. *PLoS Med*. 2009; 6(7):e1000097. doi: 10.1371/journal.pmed.1000097.
18. Noyes J, Popay J, Pearson A, Hannes K; Andrew Booth on behalf of the Cochrane. Chapter 20: Qualitative research and Cochrane reviews. In: Higgins JPT, Green S (eds). *Cochrane Handbook for Systematic Reviews of Interventions*. Version 5.0.1. The Cochrane Collaboration; 2008. Available from www.cochrane-handbook.org.
19. CRD Center for Reviews and Dissemination. *Systematic reviews: CRD's guidance for undertaking systematic reviews in health care*. York Publishing Services Ltd University of York: York; 2009.
20. Beougher SC, Bircher AE, Chakravarty D, Darbes LA, Mandic CG, Neilands TB, *et al*. Motivations to test for HIV among partners in concordant HIV-negative and HIV-discordant gay male couples. *Arch Sex Behav*. 2014;44(2):499-508. doi: 10.1007/s10508-014-0403-2.
21. Bird JDP, Morris JA, Koester KA, Pollack LM, Binson D, Woods WJ. Knowing your status and knowing your partner's status is really where it starts: a qualitative exploration of the process by which a sexual partner's hiv status can influence sexual decision making. *J Sex Res*. 2017;54(6):784-94. doi: 10.1080/00224499.2016.1202179.
22. Mitchell JW, Lee JY, Woodyatt C, Bauermeister J, Sullivan P, Stephenson R. Decisions about testing for hiv while in a relationship: perspectives from an urban, convenience sample of hiv-negative male couples who have a sexual agreement. *Arch Sex Behav*. 2017;46(4):1069-77. doi: 10.1007/s10508-016-0807-2.
23. Mitchell JW, Lee J-Y, Woodyatt C, Bauermeister J, Sullivan P, Stephenson R. HIV-negative male couples' attitudes about pre-exposure prophylaxis (PrEP) and using PrEP with a sexual agreement. *AIDS Care*. 2016;28(8):994-9. doi: 10.1080/09540121.2016.1168911.
24. Brooks RA, Kaplan RL, Lieber E, Landovitz RJ, Lee SJ, Leibowitz AA. Motivators, concerns, and barriers to adoption of preexposure prophylaxis for HIV prevention among gay and bisexual men in HIV-serodiscordant male relationships. *AIDS Care - Psychol Socio-Medical Asp AIDS/HIV*. 2011;23(9):1136-45. doi: 10.1080/09540121.2011.554528.
25. Nanin J, Osubu T, Walker J, Powell B, Powell D, Parsons J. "HIV is still real": Perceptions of HIV testing and HIV prevention among black men who have sex with men in New York City. *Am J Mens Heal*. 2009;3(2):150-64. doi: 10.1177/
26. Storholm ED, Volk JE, Marcus JL, Silverberg MJ, Satre DD. Risk perception, sexual behaviors, and prep adherence among substance-using men who have sex with men: a qualitative study. *Prev Sci*. 2017;18(6):737-47. doi: 10.1007/s11121-017-0799-8.
27. Taylor SW, Mayer KH, Elsesser SM, Mimiaga MJ, O'Cleirigh C, Safren SA. Optimizing content for pre-exposure prophylaxis (PrEP) counseling for men who have sex with men: Perspectives of PrEP used and high-rise PrEP naïve men. *AIDS Behav*. 2014;18(5):871-9.
28. Brooks RA, Landovitz RJ, Kaplan RL, Lieber E, Lee S-J, Barkley TW. Sexual risk behaviors and acceptability of hiv pre-exposure prophylaxis among hiv-negative gay and bisexual men in serodiscordant relationships: a mixed methods study. *AIDS Patient Care STDS*. 2012;26(2):87-94. doi: 10.1089/apc.2011.0283.
29. Campbell CK, Gómez AM, Dworkin S, Wilson PA, Grisham KK, McReynolds J, *et al*. Health, trust, or "just understood": explicit and implicit condom decision-making processes among black, white, and interracial same-sex male couples. *Arch Sex Behav*. 2014;43(4):697-706. doi: 10.1007/s10508-013-0146-5.

30. Hojilla JC, Koester KA, Cohen SE, Buchbinder S, Ladzekpo D, Matheson T, et al. Sexual behavior, risk compensation, and hiv prevention strategies among participants in the san francisco prep demonstration project: a qualitative analysis of counseling notes hhs public access. *AIDS Behav.* 2016;20(7):1461-9. doi: 10.1007/s10461-015-1055-5.
31. Collins SP, McMahan VM, Stekler JD. The impact of HIV pre-exposure prophylaxis (prep) use on the sexual health of men who have sex with men: a qualitative study in Seattle, WA. *Int J Sex Heal.* 2017;29(1):55-68. doi: 10.1080/19317611.2016.1206051
32. Grov C, Agyemang L, Ventuneac A, Breslow AS. Navigating condom use and hiv status disclosure with partners met online: a qualitative pilot study with gay and bisexual men from craigslist.Org. *AIDS Educ Prev.* 2013;25(1):72-85. doi: 10.1521/aeap.2013.25.1.72
33. Elwood WN, Greene K, Carter KK. Gentlemen don't speak: communication norms and condom use in bathhouses. *J Appl Commun Res.* 2003;31(4):277-97. doi: 10.1080/1369681032000132564.
34. Grace D, Jollimore J, MacPherson P, Strang MJ, Tan DHS. The pre-exposure prophylaxis-stigma paradox: learning from canada's first wave of PrEP Users. *AIDS Patient Care STDS.* 2018;32(1):24-30. doi: 10.1089/apc.2017.0153.
35. Grace D, Chown SA, Jollimore J, Parry R, Kwag M, Steinberg M, et al. HIV-negative gay men's accounts of using context-dependent sero-adaptive strategies. *Cult Health Sex.* 2014; 16(3): 316-30. doi: 10.1080/13691058.2014.883644.
36. Mimiaga MJ, Closson EF, Kothary V, Mitty JA. Sexual partnerships and considerations for HIV antiretroviral pre-exposure prophylaxis utilization among high-risk substance using men who have sex with men. *Arch Sex Behav.* 2014;43(1):99-106. doi: 10.1007/s10508-013-0208-8.
37. Hoff CC, Chakravarty D, Bircher AE, Campbell CK, Grisham K, Neilands TB, et al. Attitudes towards PrEP and anticipated condom use among concordant HIV-negative and hiv-discordant male couples. *AIDS Patient Care STDS.* 2015;29(7):408-17. doi: 10.1089/apc.2014.0315.
38. Holloway IW, Winder TJ, Lea III CH, Tan D, Boyd D, Novak D. Technology use and preferences for mobile phone-based hiv prevention and treatment among black young men who have sex with men: exploratory research. *JMIR MHealth UHealth.* 2017;5(4): e46. doi: 10.2196/mhealth.6436.
39. Holmes D, Gastaldo D, O'Byrne P, Lombardo A. Bareback sex: a conflation of risk and masculinity. *Int J Mens Health.* 2008;7(2):171-91. DOI: 10.3149/jmh.0702.171.
40. Hussen SA, Stephenson R, del Rio C, Wilton L, Wallace J, Wheeler D, et al. HIV testing patterns among black men who have sex with men: a qualitative typology. *PLoS One.* 2013; 8(9), e75382. doi: 10.1371/journal.pone.0075382.
41. Martinez O, Wu E, Levine EC, Muñoz-Laboy M, Fernandez MI, Bass SB, et al. Integration of social, cultural, and biomedical strategies into an existing couple-based behavioral HIV/STI prevention intervention: Voices of latino male couples. *PLoS One.* 2016;11(3):1-22. doi: 10.1371/journal.pone.0152361
42. Martinez O, Wu E, Frasca T, Shultz AZ, Fernandez MI, López Rios J, et al. Adaptation of a couple-based HIV/STI prevention intervention for latino men who have sex with men in New York City. *Am J Mens Health.* 2017;11(2):181-95. doi: 10.1177/1557988315579195.
43. Medline A, Daniels J, Marlin R, Young S, Wilson G, Huang E, et al. HIV Testing preferences among MSM members of an LGBT community organization in Los Angeles. *J Assoc Nurses AIDS Care.* 2017;28(3):363-71. doi: 10.1016/j.jana.2017.01.001.
44. Bil JP, Van Der Veldt WM, Prins M, Stolte IG, Davidovich U. Motives of Dutch men who have sex with men for daily and intermittent HIV pre-exposure prophylaxis usage and preferences for implementation A qualitative study. *Med (United States).* 2016; 95(39): e4910. doi:10.1097/MD.00000000000004910.
45. Boydell N, Buston K, McDaid LM. Patterns of HIV testing practices among young gay and bisexual men living in Scotland: A qualitative study. *BMC Public Health.* 2017;17(1):1-10. doi: 10.1186/s12889-017-4653-5.
46. Gredig D, Uggowitzer F, Hassler B, Weber P, Niderost S. Acceptability and willingness to use HIV pre-exposure prophylaxis among HIV-negative men who have sex with men in Switzerland. *AIDS Care.* 2016; 28 Suppl 1:44-7. doi: 10.1080/09540121.2016.1146212.
47. Grov C. Gay men's perspectives on HIV prevention and treatment in Berlin, Germany: lessons for policy and prevention. *Int J Sex Heal.* 2017;29(2):124-34. doi: 10.1080/19317611.2016.1247758
48. Middelthon A-L. Interpretations of condom use and nonuse among young norwegian gay men: a qualitative study. *Med Anthropol Q.* 2001;15(1):58-83.
49. Sayer C, Fisher M, Nixon E, Nambiar K, Richardson D, Perry N, et al. Will I? Won't I? Why do men who have sex with men present for post-exposure prophylaxis for sexual exposures? *Sex Transm Infect.* 2009;85(3):206-11. doi: 10.1136/sti.2008.033662
50. Witzel TC, Weatherburn P, Rodger AJ, Bourne AH, Burns FM. Risk, reassurance and routine: a qualitative study of narrative understandings of the potential for HIV self-testing among men who have sex with men in England. *BMC Public Health.* 2017;17(1):491. doi: 10.1186/s12889-017-4370-0.

51. Young I, Flowers P, Mcdaid L. Can a pill prevent HIV? Negotiating the biomedicalisation of HIV prevention. *Sociol Heal Illn.* 2016;38(3):411-25. doi: 10.1111/1467-9566.12372
52. Lee M, Sandfort T, Collier K, Lane T, Reddy V. Breakage is the norm: use of condoms and lubrication in anal sex among Black South African men who have sex with men. *Cult Health Sex.* 2017;19(4):501-14. doi: 10.1080/13691058.2016.1239134.
53. Maina G, Strudwick G, Lalani Y, Boakye F, Wilton L, Nelson LRE. Characterizing the structure and functions of social networks of men who have sex with men in Ghana, west Africa: implications for peer-based HIV prevention. *J Assoc Nurses AIDS Care.* 2018; 29(1):70-82. doi: 10.1016/j.jana.2017.07.
54. Siegler AJ, Sullivan PS, de Voux A, Phaswana-Mafuya N, Bekker LG, Baral SD, et al. Exploring repeat HIV testing among men who have sex with men in Cape Town and Port Elizabeth, South Africa. *AIDS Care.* 2015;27(2):229-34. doi: 10.1080/09540121.2014.947914
55. Taegtmeyer M, Davies A, Mwangome M, van der Elst EM, Graham SM, Price MA, et al. Challenges in providing counselling to msm in highly stigmatized contexts: results of a qualitative study from Kenya. *PLoS One.* 2013; 8(6): e64527. Doi: 10.1371/journal.pone.0064527
56. Wagner GJ, Aunon FM, Kaplan RL, Rana Y, Khouri D, Tohme J, et al. A qualitative exploration of sexual risk and HIV testing behaviors among men who have sex with men in Beirut, Lebanon. *PLoS One.* 2012; 7(9): e45566. doi: 10.1371/journal.pone.0045566
57. Körner H, Hendry O, Kippax S. It's not just condoms: Social contexts of unsafe sex in gay men's narratives of post-exposure prophylaxis for HIV. *Health Risk Soc.* 2005;7(1):47-62. doi: 10.1080/13698570500053238
58. Körner H, Hendry O, Kippax S. Safe sex after post-exposure prophylaxis for HIV: Intentions, challenges and ambivalences in narratives of gay men. *AIDS Care.* 2006;18(8):879-87.
59. Körner H, Hendry O, Kippax S. Negotiating risk and social relations in the context of post-exposure prophylaxis for HIV: Narratives of gay men. *Heal Risk Soc.* 2005;7(4):349-60. doi: 10.1080/13698570500390218
60. Neville S, Adams J, Moorley C, Jackson D. The condom imperative in anal sex - one size may not fit all: a qualitative descriptive study of men who have sex with men. *J Clin Nurs.* 2016;25(23-24):3589-96. doi: 10.1111/jocn.13507
61. Blas MM, Menacho LA, Alva IE, Cabello R, Orellana ER. Motivating men who have sex with men to get tested for hiv through the internet and mobile phones: a qualitative study. *PLoS One.* 2013; 8(1): e54012. Doi: 10.1371/journal.pone.0054012.
62. Gonzales FA, Zea MC, Reisen CA, Bianchi FT, Betancourt Rodríguez CF, Aguilar Pardo M, et al. Popular perceptions of circumcision among Colombian men who have sex with men. *Cult Health Sex.* 2012;14(9):991-1005. doi: 10.1080/13691058.2012.712719.
63. Logie CH, Lacombe-Duncan A, Brien N, Jones N, Lee-Foon N, Levermore K, et al. Barriers and facilitators to HIV testing among young men who have sex with men and transgender women in Kingston, Jamaica: A qualitative study. *J Int AIDS Soc.* 2017;20(1):1-8. doi: 10.7448/IAS.20.1.21385.
64. Reisen CA, Zea MC, Bianchi FT, Poppen PJ, del Río González AM, Romero RAA, et al. HIV testing among MSM in Bogotá, Colombia: the role of structural and individual characteristics. *AIDS Educ Prev.* 2014;26(4):328-44. doi: 10.1521/aeap.2014.26.4.328.
65. Bourne A, Cassolato M, Thuan Wei CK, Wang B, Pang J, Lim SH, et al. Willingness to use pre-exposure prophylaxis (PrEP) for HIV prevention among men who have sex with men (MSM) in Malaysia: findings from a qualitative study. *J Int AIDS Soc.* 2017;20(1): 21899. doi: 10.7448/IAS.20.1.21899.
66. Newman PA, Rongprakhon S, Tepjan S. A social ecology of rectal microbicide acceptability among young men who have sex with men and transgender women in Thailand. *J Int AIDS Soc.* 2013; 16:18476. doi: 10.7448/IAS.16.1.18476
67. Wei C, Yan H, Yang C, Raymond F, Li J, Yang H, et al. Accessing HIV testing and treatment among men who have sex with men in China: a qualitative study. *AIDS Care.* 2014;26(3):372-8. doi: 10.1080/09540121.2013.824538.
68. Grant RM, Lama JR, Anderson PL, McMahan V, Liu AY, Vargas L, et al. Preexposure chemoprophylaxis for HIV prevention in men who have sex with men. *N Engl J Med* 2010; 363:2587-2599. DOI: 10.1056/NEJMoa1011205.
69. Kaplan JE, Dominguez K, Jobarteh K, Spira TJ. Postexposure Prophylaxis against human immunodeficiency virus (HIV): new guidelines from the WHO: a perspective. *Clin Infect Dis.* 2015;60(suppl 3): S196-9. doi: 10.1093/cid/civ087.
70. Ford N, Mayer KH; World Health Organization Postexposure Prophylaxis Guideline Development Group. World Health Organization Guidelines on postexposure prophylaxis for HIV: recommendations for a public health approach. *Clin Infect Dis.* 2015/05/15. 2015;60(suppl 3): S161-4. doi: 10.1093/cid/civ068.
71. Beanland RLL, Irvine CMM, Green K. End users' views and preferences on prescribing and taking postexposure prophylaxis for prevention of HIV: methods to support World Health Organization Guideline development. *Clin Infect Dis.* 2015; 60(suppl 3): S191-5. doi:10.1093/cid/civ070

72. Ford N, Shubber Z, Calmy A, Irvine C, Rapparini C, Ajose O, et al. Choice of Antiretroviral Drugs for Postexposure Prophylaxis for Adults and Adolescents: A Systematic Review. *Clin Infect Dis*. 2015;60(suppl 3): S170-6.
73. Ford N, Venter F, Irvine C, Beanland RL, Shubber Z. Starter packs versus full prescription of antiretroviral drugs for postexposure prophylaxis: a systematic review. *Clin Infect Dis*. 2015;60(suppl 3): S182-6. doi: 10.1093/cid/civ093.
74. Siegfried N, Beanland RL, Ford N, Mayer KH. Formulating the future research agenda for postexposure prophylaxis for HIV: methodological challenges and potential approaches. *Clin Infect Dis*. 2015;60(suppl_3): S205-11. doi: 10.1093/cid/civ139.
75. Jayathunge PH, McBride WJ, MacLaren D, Kaldor J, Vallely A, Turville S. Male circumcision and HIV transmission what do we know?. *Open AIDS J*. 2014; 2014; 8:31-44. doi:10.2174/1874613601408010031
76. WHO. Guideline on the use of devices for adult male circumcision for HIV prevention. World Health Organization; 2013.
77. Eyer-Silva WA. A circuncisão masculina e a transmissão heterossexual do HIV. *Rev Saúde Pública*. 2003; 37: 678-686. Doi: 10.1590/S0034-89102003000500022.
78. UNAIDS, Joint United Nations Program on HIV/AIDS. Combination HIV Prevention: Tailoring and Coordinating Biomedical, Behavioural and Structural Strategies 10 to Reduce New HIV Infections. UNAIDS; 2010.
79. Rotheram-Borus MJ, Swendeman D, Chovnick G. The past, present, and future of HIV prevention: integrating behavioral, biomedical, and structural intervention strategies for the next generation of HIV prevention. *Annu Rev Clin Psychol*. 2009;5(1):143-67. doi: 10.1146/annurev.clinpsy.032408.153530.
80. UNAIDS, Joint United Nations Program on HIV/AIDS. Fast-tracking combination prevention. Towards reducing new hiv infections to fewer than 500 000 by 2020. UNAIDS/JC2766E. UNAIDS; 2015. Available at: http://www.unaids.org/sites/default/files/media_asset/20151019_JC2766_Fast-tracking_combination_prevention.pdf.
81. Paiva V. Sem mágicas soluções: a prevenção e o cuidado em HIV/AIDS e o processo de emancipação psicossocial. *Interface-Comunicação Saúde Educ*. 2002;6:25-38. Doi: 10.1590/S1414-32832002000200003.
82. Ministério da Saúde, Secretária de Vigilância em Saúde, Departamento de Vigilância Prevenção e Controle das Infecções Sexualmente Transmissíveis do HIV/Aids e das Hepatites Virais. Prevenção Combinada do HIV/ Bases conceituais para profissionais, trabalhadores(as) e gestores(as) de saúde. Brasil; 2017. p. 123.
83. Grangeiro A, Ferraz D, Calazans G, Zucchi EM, Díaz-Bermúdez XP. The effect of prevention methods on reducing sexual risk for HIV and their potential impact on a large-scale: a literature review. *Rev Bras Epidemiol*. 2015; 18(Suppl 1): 43-62. doi: 10.1590/1809-45032015000500005.
84. Mayer KH, Bekker L-G, Stall R, Grulich AE, Colfax G, Lama JR. Comprehensive clinical care for men who have sex with men: an integrated approach. *Lancet*. 2012;380(9839):378-87. doi: 10.1016/S0140-6736(12)60835-6.
85. Ogden J, Esim S, Grown C. Expanding the care continuum for HIV/AIDS: bringing careers into focus. *Health Policy Plan*. 2006;21(5):333-42. doi: 10.1093/heapol/czl025
86. Mendes EV. As redes de atenção à saúde. *Cien Saude Colet*. 2010; 15(5): 2297-2305. Doi: 10.1590/S1413-81232010000500005.
87. Lomando E, Wagner A, Gonçalves J. Coesão. Adaptabilidade e rede social no relacionamento conjugal homossexual. *Psicol Teor Prática*. 2011; 13(3):96-109.
88. de Andrade GRB, Vaitzman J. Apoio social e redes: conectando solidariedade e saúde. *Ciências Saude Coletiva*. 2002; 7(4):925-34.
89. Gonçalves TR, Pawlowski J, Bandeira DR, Piccinini CA. Avaliação de apoio social em estudos brasileiros: aspectos conceituais e instrumentos. *Ciências Saúde Coletiva*. 2011; 16(3):1755-69. Doi: 10.1590/S1413-81232011000300012.
90. Chambers LA, Rueda S, Baker DN, Wilson MG, Deutsch R, Raeifar E, et al. Stigma, HIV and health: A qualitative synthesis. *BMC Public Health*. 2015; 15: 848. doi:10.1186/s12889-015-2197-0.
91. Parker R, Aggleton P. HIV and AIDS-related stigma and discrimination: a conceptual framework and implications for action. *Soc Sci Med*. 2003;57(1):13-24.
92. Rios LF, Almeida V, Parker R, Pimenta C, Terto JV. Homossexualidade?: produção cultural, cidadania e saúde. Rio de Janeiro: ABIA; 2004. Available at: <http://www.bibliotecadigital.abong.org.br/bitstream/handle/11465/604/1.pdf?sequence>