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Perceptions of pre-exposure prophylaxis (PrEP) among HIV-negative and HIV-positive men who have sex with men (MSM)

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Abstract: Pre-exposure prophylaxis (PrEP) is a novel bio-medical HIV prevention option for individuals at high risk of HIV exposure. This qualitative interview study explores perceptions and understandings of PrEP among a sample of 20 HIV-negative and HIV-positive men who have sex with men (MSM) in the UK, where there is a debate about the feasibility of offering PrEP on the NHS. Data were analysed using qualitative thematic analysis and social representations theory from social psychology. The following three themes are discussed: (1) uncertainty and fear, (2) managing relationships with others, and (3) stigma and categorization. HIV-negative interviewees generally perceived PrEP as a risky solution for "high risk" individuals, while HIV-positive individuals regarded it as potentially enhancing interpersonal relations between serodiscordant partners. Social stigma overwhelmingly underpinned individuals' perceptions of PrEP. This might inhibit access to PrEP among those who might benefit most from it, thereby undermining HIV prevention efforts.

Subjects: HIV/AIDs; Sexual and Reproductive Health; Community Health

Keywords: pre-exposure prophylaxis (PrEP); HIV; HIV prevention; men who have sex with men (MSM); risk; stigma

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PUBLIC INTEREST STATEMENT

Pre-exposure prophylaxis (PrEP) is an HIV prevention option that consists of taking Truvada® on either a daily or an intermittent basis. This article explores perceptions and understandings of PrEP among a group of 20 HIV-negative and HIV-positive men who have sex with men (MSM). Findings indicate that HIV-negative MSM may express uncertainty about side effects and the effectiveness of PrEP, thereby inducing fear of the prevention tool; that PrEP may induce difficulties in relationships with others; and that social stigma can impede access to the prevention option. Conversely, HIV-positive interviewees believed that PrEP could potentially reduce uncertainty around onward transmission, thereby decreasing fear of sex with HIV-negative partners; that it might enhance relations with others, including HIV-negative partners; and that PrEP might reduce HIV stigma, although they themselves often stigmatized PrEP and PrEP users. Social stigma constitutes a barrier to accessing PrEP among those who could benefit from it.

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1. Introduction

Pre-exposure prophylaxis (PrEP) is a novel bio-medical HIV prevention option for individuals at high risk of HIV exposure. The drug Truvada®, consisting of the two reverse transcriptase inhibitors emtricitabine and tenofovir, is currently approved for use as PrEP in the US and in clinical trials in the UK. Clinical trials in a number of countries and contexts converge in evidencing the high effectiveness of PrEP as a means of preventing HIV infection (Anderson et al., 2012). In 2012, the Food and Drug Administration (FDA) approved PrEP for use in the US. PrEP is not currently available in the UK, although there is a campaign for it to be made available on the UK National Health Service (NHS) to individuals at high risk of HIV acquisition. There has been some social sciences research into attitudes towards PrEP (Brooks et al., 2012; Tangmunkongvorakul et al., 2013), much of which has focused on clinical trial participants or on HIV-negative individuals in the US who have access to PrEP. However, there has been no UK-based research into attitudes towards PrEP among HIV-negative and HIV-positive men who have sex with men (MSM). MSM constitute the group most affected by HIV in the UK (Public Health England, 2015). Using a qualitative interview design, this study explores perceptions and understandings of PrEP among a small sample of MSM in the UK, where PrEP is set to become a reality. The aim is to provide some preliminary insights into perceptions and understandings of PrEP in this population.

1.1. Approaches to HIV prevention

Human Immunodeficiency Virus (HIV) is the virus that causes Acquired Immune Deficiency Syndrome (AIDS). Globally, some 36 million people have died of AIDS since its first clinical observations in 1981, and it is estimated that 35.3 million people are currently living with HIV.[1] According to Public Health England (2015), HIV prevalence in the UK population aged between 15–59 is 0.19%—Approximately, 103,700 people are living with the virus, 17% of whom are unaware of their infection. MSM constitute the group at highest risk of HIV acquisition in the UK. It is estimated that some 45,000 MSM were living with HIV in 2014 and 1 in 11 MSM in London is HIV-positive. In 2014, a total of 5,850 individuals were diagnosed with (sexually transmitted) HIV, which represents a slight increase from 2013. Of these new diagnoses, 3,360 (57%) were MSM. HIV transmission among MSM shows no signs of having decreased over the last decade.

In the absence of a vaccine or cure, prevention remains the most effective strategy against HIV. The promotion of condom use has long been the preferred policy strategy in most countries (Abraham, Krahé, Dominic, & Fritsche, 2002). Although condoms remain a highly effective prevention tool, both for HIV and other STIs, rising HIV incidence suggests that not everybody uses them consistently. Condom fatigue among MSM despite the risk of HIV has been studied in several contexts (Rowniak, 2009; Shernoff, 2006). This work identifies other prevention techniques used by MSM. For instance, many engage in "serosorting", that is, they may have condomless sex with individuals who they believe share their HIV status (Golden, Stekler, Hughes, & Wood, 2008). However, almost one fifth of HIV-infected individuals in the UK are unaware of their status and, due to the social stigma, some may choose not to disclose it. More recently, treatment as prevention has emerged as an effective strategy given that antiretroviral treatment (ART) suppresses the HIV-infected individual's viral load, often to "undetectable" levels,[2] which significantly reduces their risk of transmitting HIV to sexual partners (Attia, Egger, Müller, Zwahlen, & Low, 2009). However, many new infections occur as a result of sexual intercourse with an undiagnosed and, thus, untreated HIV-infected individual. Incidentally, those with acute HIV infection are perhaps less likely to be aware of their infection but will present a high viral load. Rising HIV incidence has led to debates around biomedical prevention strategies, the most prominent of which is PrEP.

1.2. The emergence of PrEP: Opportunities and risks

A series of clinical trials, including iPrEx (Grant et al., 2010), Partners PrEP (Baeten et al., 2012) and PROUD (McCormack et al., 2016), have demonstrated the effectiveness of orally administered PrEP. Following the PROUD clinical trial, NHS England has been evaluating PrEP but it is unlikely that any decision will be made about its provision on the NHS until 2017.[3] In arguments against PrEP, the following specific concerns have been cited:

- PrEP is often positioned as a prevention technique that should be used alongside condoms. However, critics have voiced concerns that PrEP may obviate the perceived need to use condoms and thereby increase the incidence of other STIs.
- Adherence to PrEP is central to its effectiveness. Given that drug adherence is a concern among many HIV patients (Fogarty et al., 2001), critics fear similar problems with adherence to PrEP which could decrease its effectiveness. HIV infection could occur during a window of low drug exposure due to poor adherence. Incidentally, recent attitudinal research suggests that one's HIV-negative serostatus may create complacency vis-à-vis adherence to PrEP (Tangmunkongvorakul et al., 2013).
- Clinical trials have found no evidence that PrEP causes serious side effects, although minor side effects (e.g. nausea, stomach pains, loss of appetite) have been observed in some patients. Conversely, concerns have been raised about possible long-term side effects (e.g. decreased kidney function, reduction in bone density).
- HIV-infected individuals must never use PrEP because this can lead to viral mutations and, thus, drug resistance. It is possible that an individual who takes an HIV test during the acute infection stage will test negative for the virus. Use of only two anti-HIV agents (emtrictabine and tenofovir disproxil fumarate) instead of three could give rise to drug resistance, thereby limiting future treatment options. There are concerns that newly infected individuals who are unaware of their positive serostatus may take PrEP and develop drug resistance.

These concerns have influenced media and policy debates concerning PrEP, thereby contributing to societal thinking about the prevention tool (Jaspal & Nerlich, 2016). As highlighted in this article, some of these concerns are also observable in MSM's attitudes towards PrEP in the US.

1.3. MSM's perspectives on PrEP

Although PrEP has been available in the US since 2012, uptake has been relatively low (Flash et al., 2014). Research in a number of US cities suggests that low awareness of PrEP is a key impediment to uptake. In a recent survey of MSM in Boston, Pittsburgh and San Juan (Puerto Rico) (Dolezal et al., 2015), it was found that only 21% of respondents had heard of PrEP. However, when PrEP was explained to respondents, the mean intention to use it was high (9.1 in San Juan and 7.7 in Boston, on a 10-point scale), suggesting that greater awareness and understanding may contribute to greater endorsement. It is noteworthy that there appears to be low levels of awareness of PrEP in demographic groups at highest risk of HIV infection. For instance, only 23.4% of the 436 Black MSM surveyed in Atlanta, Georgia were aware of PrEP (Eaton, Driffin, Bauermeister, Smith, & Conway-Washington, 2015).

However, there is no straightforward correlation between awareness of and intention to use PrEP—MSM who are aware of PrEP do not automatically endorse it as a prevention tool. Barriers to using PrEP include *inter alia* HIV-related stigma (Wade Taylor et al., 2014), concern over side effects (Kubicek, Arauz-Cuadra, & Kipke, 2015) and concerns that it might not be reliably protective against HIV (Golub, Gamarel, Rendina, Surace, & Lelutiu-Weinberger, 2013). Among Australian MSM, willingness to use PrEP declined between 2011 and 2013 from 28.8 to 23.3% respectively (Holt et al., 2014). In their US survey study, Gamarel and Golub (2015) found that higher risk perception, intimacy motivations for condomless sex and recent condomless sex independently predicted PrEP adoption intentions. Risk perception plays an important role in determining use intentions—78% of the MSM who met the behavioural criteria for PrEP did not perceive their risk to be significant enough to warrant PrEP use (Gallagher et al., 2014). In their study of ethnic minority MSM in the UK, Jaspal et al. (2016) found that participants who perceived their sexual behaviour as low risk actually had the poorest knowledge of HIV. Saberi et al. (2012) found that the likelihood of using PrEP in the future was positively correlated with unprotected insertive anal intercourse and negatively associated with unprotected receptive anal intercourse (the highest-risk behaviour). This research suggests that individuals' subjective risk estimates are not always consistent with objective risk, which can obviate the perceived need for PrEP among those who could benefit from it.

Sexual risk-taking has also been associated with PrEP use although findings are inconsistent. While Brooks et al. (2012) found that 64% of their respondents acknowledged a likely increase in sexual-risk taking, including the complete abandonment of condom use, Barash and Golden (2010) found no association between sexual risk-taking behaviour and interest in taking PrEP. Given the social stigma appended to (unprotected) casual sex, which has been referred to as "slut shaming" (McDavitt & Mutchler, 2014), individuals may attempt to adhere to the coercive social norm of practicing safer sex. The present study explores how MSM in the UK foresee the potential impact of PrEP on their own sexual behaviour. Moreover, while existing research has understandably focused on HIV-negative MSM's perceptions of PrEP given that PrEP is a *prevention* method, the present study also explores how HIV-positive MSM perceive the prevention tool and its possible impact for relations with HIV-negative MSM.

1.4. Social representations theory

Social representations theory (Moscovici, 1988) provides a useful framework for understanding the development of perceptions of PrEP. At a basic level, a social representation can be defined as a collective "elaboration" of a given social object which enables individuals to think and talk about it. For the purposes of this study, this elaboration consists of emerging beliefs, values, ideas, images and metaphors in relation to PrEP. Two principal social psychological processes converge in the creation of social representations:

- *anchoring* refers to the process whereby a novel, unfamiliar phenomenon is integrated into existing ways of thinking. For instance, Spieldenner (2016) has observed that PrEP use is linked to sexual promiscuity which has given rise to the terms "PrEP Whore" and "Truvada Whore" to characterize users.
- *objectification* refers to the process whereby an abstract phenomenon is rendered concrete and tangible. Jaspal and Nerlich (2016) have noted the use of militaristic metaphors of PrEP as a "weapon" in the "battle" against HIV.

Breakwell (2014) has outlined the processes that underpin the individual's relationship with a social representation. The individual takes a stance on a given social representation, that is, they differ in the extent to which they are aware of, understand, accept, and assimilate to their thinking a social representation. For instance, while an individual may be aware of PrEP, they may understand it in similar terms to the contraceptive pill due to the societal *anchoring* of PrEP to the contraceptive pill. This could have important implications for how MSM engage with and behave in relation to the preventive tool. The present study identifies and describes the overarching social representations discernible in UK MSM's accounts of PrEP.

2. Method

2.1. Participants

Using a snowball sampling strategy, 20 MSM were recruited in the East Midlands and in West London, UK. It is habitual to conduct qualitative research with fairly small sample sizes because the primary aim is to gain a deep and detailed understanding of a given phenomenon rather than to generate generalizable data (Braun & Clarke, 2006; Smith & Osborn, 2008). Therefore, it was decided that a sample of 20 participants would be sufficient for the purpose of the present study. Ten individuals were White British, four were Black British, three were of South Asian heritage, and three were Latin American. Nine participants had been diagnosed with HIV, and 11 had tested HIV-negative at their last test. Participants were aged between 18 and 48 years (M = 31.6). Eight participants had university-level qualifications, eight had completed college education, and four reported having no formal qualifications. Although all of the HIV-positive interviewees had heard of PrEP before participating in this study, only six of the HIV-negative interviewees had knowledge of it which they believed to be cursory.

2.2. Procedure and analytic approach

These data are drawn from an interview study focusing on aspects of identity and sexual health among HIV-negative and HIV-positive MSM. In this study, interviewees were asked their views regarding PrEP. Interviews were guided by a semi-structured interview schedule consisting of a series of exploratory, open-ended questions. The schedule began with questions regarding self-description and identity, followed by some questions/probes that elicited information concerning sexual behaviour and sexual risk-taking, attitudes towards PrEP and users of PrEP, and interpersonal relations with other MSM. Interviews lasted between 60 and 90 min, and were digitally recorded and transcribed verbatim.

The data were analysed using qualitative thematic analysis, which has been described as "a method for identifying, analysing and reporting patterns (themes) within data" (Braun & Clarke, 2006, p. 78). Thematic analysis is a flexible qualitative technique that allows the analyst to identify key perceptions of, and meanings attributed to, a particular phenomenon. This approach can shed light on the subjective perceptual processes associated with participants' attempts to make sense of a phenomenon like PrEP. Moreover, its idiographic mode of enquiry facilitates in-depth exploration of how each individual conceptualized PrEP, the meanings he attributed to it, and how PrEP might affect their lives and personal relationships.

The authors transcribed the recordings and studied the transcripts. During each reading of the transcripts preliminary interpretations were noted in the left margin. These included *inter alia* participants' meaning-making, particular forms of language, and apparent contradictions and patterns. Initial codes aimed to capture, from the analyst's perspective, participants' attempts to make sense of the object of analysis. Then the right margin was used to collate these initial codes into potential themes, which captured the essential qualities of the accounts. The list of themes was reviewed rigorously against the data to ensure their compatibility and numerous interview extracts were listed against each corresponding theme. At this stage specific interview extracts, which were considered representative of the themes, were selected for presentation in this article. Finally, three superordinate themes which reflected the analysis were developed and ordered into a coherent narrative structure. In addition to the dominant themes in the interviews, the analysis identified key linguistic elements that performed the functions of anchoring and objectification. The superordinate themes can be considered social representations because they "assume a configuration where concepts and images can coexist without any attempt at uniformity, where uncertainty as well as misunderstandings are tolerated, so that discussion can go on and thoughts circulate" (Moscovici, 1988, p. 233).

3. Results

The analysis of HIV-negative and HIV-positive MSM's reflections on PrEP can be summarized in terms of the following three themes: (1) uncertainty and fear, (2) managing relationships with others, and (3) stigma and categorization.

3.1. Uncertainty and fear

There is an established empirical link between uncertainty and fear (Grupe & Nitschke, 2013). A large body of research indicates that uncertainty surrounding future outcomes can fuel fear. The two constructs are considered in tandem because the data presented in the present study strongly suggest that uncertainty about the effectiveness of PrEP generated fear of HIV infection despite adherence to the preventative drug. Despite evidence from clinical trials that PrEP is highly effective in preventing HIV infection, HIV-negative individuals still manifested uncertainty and fear about its effectiveness. Several individuals described their anxiety after sexual encounters even when they had used condoms, highlighting the general fear of HIV infection among many MSM (Prestage et al., 2012), and contrasted them with the prospect of using PrEP (an *invisible* prevention method). Accordingly, many anticipated greater anxiety about HIV infection after sex (with PrEP):

> Well, they say it's effective but it isn't exactly a vaccine is it? Scientists can make mistakes too... With a condom you put it on and that's it. You know what the score is. (Joel, HIV-negative)

> I don't trust the scientists. One minute it's OK to just take it and then the next "oh sorry, we misjudged that" ... it's like when they didn't get the whole blood transfusions issue and loads of people wound up getting infected. (Keiron, HIV-negative)

As a relatively novel prevention tool, PrEP was perceived as an uncertain method of protecting oneself against HIV infection. This is contrast to previous research which has found that PrEP can reduce fear of HIV (Koester et al., 2014). Interestingly, there was a clear orientation towards a one-shot HIV vaccine as the desired HIV prophylaxis. Indeed, in an analysis of the press coverage of PrEP (Jaspal & Nerlich, 2016), it has been found that some journalists in favour of the prophylactic tool often anchored it to vaccination and, in some cases, constructed it as surpassing a vaccine in terms of its benefits. Despite this misleading press tendency, some interviewees rejected this notion but, due to the cultural desirability of a vaccine, also appeared to reject the effectiveness of PrEP. Interviewees' fear and uncertainty vis-à-vis PrEP additionally stemmed from their general mistrust of scientists and public health experts who "can make mistakes too." Keiron described his fear that PrEP may fail by anchoring scientists' knowledge on PrEP to their lack of knowledge concerning the contamination of blood products which led to HIV infections among recipients. This early error in the HIV/AIDS crisis re-surfaced in some interviewees' minds and shaped scepticism towards PrEP.

Much of participants' trepidation in relation to PrEP stemmed from uncertainty and, thus, fear surrounding its potential (long-term) side effects (Grant et al., 2014). There was a clear tendency to anchor PrEP to earlier generations of ART which did cause side effects:

> It freaks me out, taking those pills and you don't know the effects they will have ... You know, people on medication wasting away. I do look after myself and my body and skin. All of that matters to me. (Ian, HIV-negative)

> You know, you hear the stories about, you know, being forced to pump drugs into your body and people dying from it. What's the need to pump drugs in your body unnecessarily? (Andy, HIV-negative)

Individuals focussed largely on the physical side effects of using as prophylaxis drugs currently used to treat HIV infection. Ian believed that PrEP might cause undesirable physical changes, thereby undermining his efforts to "look after myself and my body and skin". Upon closer scrutiny, it became clear that he anchored PrEP to first-generation ART which could cause liphodystrophy and other physical changes. In short, Ian and others feared that they would become identifiable as PrEP users, due to the physical changes they believed to be associated with its use. This anchoring process was similarly echoed in Andy's reflections on PrEP as he associated it with "people dying from" the use of AZT in the early stages of the ART development.

In addition to the tendency to anchor PrEP to first-generation ART, there was consistent use of metaphors of force and aggression in the data. The objectification of taking PrEP as "being forced to pump drugs into your body" constructed a decreased sense of agency and self-efficacy in relation to sexual health. This metaphorical theme is in stark contrast to the perception among some users of PrEP that it conversely does provide greater choice and agency in protecting their sexual health (Grant & Koester, 2016). Although several interviewees acknowledged their own inconsistent use of condoms, on a conceptual level were evaluated as a more logical approach to HIV prevention than a biomedical approach involving "drugs".

The impact of PrEP on one's own sexual behaviour constituted an additional source of uncertainty for interviewees, as some believed that they might find it more difficult to use condoms consistently:

> In a way it sounds good I agree because I do sort of have [condom] slip ups quite a bit, like I have had unprotected sex a few times... But I think maybe it's something to like improve on and with PrEP I reckon I'd stop altogether and that does worry me. (Kyle, HIV-negative)

Kyle referred to condomless sexual encounters as "slip ups" as he acknowledged the associated risks. Use of this term also suggested that condomless encounters were undesirable and that he wished to change this risky behaviour. This may be attributed to the social stigma appended to condomless sex in the MSM community (Shernoff, 2006), which is also sometimes reproduced by medical professionals (Grant & Koester, 2016). Upon reflection, Kyle feared that PrEP would accentuate his existing habit of not using condoms in casual sexual encounters, because it would provide protection against the STI he feared most, namely HIV. In short, Kyle expressed uncertainty about his future sexual behaviour which increased his fear of possible HIV infection. Like Kyle, several individuals quite honestly acknowledged the "competition" between PrEP and condoms and did not seriously believe that they would use condoms consistently while taking PrEP (Brooks et al., 2012). This is in contrast to the advice given by both the FDA in the US and the research team leading the clinical trials in the UK.[4]

While the HIV-negative interviewees perceived fear and uncertainty in relation to PrEP, several HIV-positive individuals conversely regarded the prophylactic tool as a means of *reducing* fear and uncertainty brought on by their HIV diagnosis:

> When I was diagnosed, I felt terrible ... I felt like a monster, that I was going to infect everyone. I was quite afraid... I think PrEP would give me more confidence and give my partners more security. (Miguel, HIV-positive)

> HIV has been hanging over me, the virus, the condition. Negative folks just think I'm going round infecting left, right and centre but actually I'm undetectable. PrEP is just an added bit of security so it will calm us all down. (James, HIV-positive)

> Since my diagnosis there's still a niggling sort of worry I have about spreading the virus and it used to petrify me if I'm honest ... This new thing might help to like soften me up a bit [laughs]. (Pete, HIV-positive)

The HIV-positive interviewees vividly described the negative social and psychological consequences of HIV stigma, which in many cases had produced decreased self-esteem and reduced connectedness between them and other (HIV-negative) MSM. Miguel, for instance, had clearly internalized HIV stigma. He continued to fear passing on the virus to others, a concern that can inhibit the formation of a positive sexual identity and inhibit sexual relations (van Kesteren, Hospers, Kok, & van Empelen, 2005). Similarly, James cited the misconception among some HIV-negative MSM that HIV-positive individuals pose a health hazard due to their HIV status, which could decrease interest in sex. Interviewees believed that *psychologically* PrEP would provide them with increased confidence in negotiating sexual relations with partners, and that *biologically it* would also provide their sexual partners with further protection. In addition to treatment as prevention[5] and condom use, PrEP constituted "an added bit of security". In short, PrEP could reduce uncertainty about onward HIV transmission and, thus, decrease fear surrounding serodiscordant sexual relations.

As an HIV prevention tool, PrEP is only of direct biological benefit to HIV-negative individuals but these data show that it may also bring about social psychological benefits. In addition to increased certainty and reduced fear, HIV-positive interviewees felt that PrEP might obviate the need to engage in difficult conversations about HIV:

> It can make life a bit easier... There is a lot of second guessing. "Shall I ask him if he wants to?" then "will he use a condom or not?" (James, HIV-positive)

> With PrEP, it might sort of like become a non-issue, right? (Jake, HIV-positive)

HIV disclosure can be difficult due to fear of rejection (Courtenay-Quirk, Wolitski, Parsons, Gómez, & The Seropositive Urban Men's Study Team, 2006). Interviewees described their own negative experiences of disclosure in sexual contexts. This led some individuals to construe their HIV status as a private, individual matter, which they could therefore choose not to disclose. Some reportedly used more subtle ways of avoiding onward HIV transmission by suggesting condom use to their sexual partners, although they sometimes found it difficult to negotiate condom use. It could be difficult to convince their partners to use condoms *without* disclosing their own HIV status, thereby increasing the risk of rejection. However, Jake and James believed that PrEP would obviate the need for condom negotiation or HIV disclosure in order to avoid possible transmission. This echoed the broader perception among HIV-positive interviewees that PrEP added a further layer of safety, thereby decreasing possible feelings of insecurity and guilt.

3.2. Managing relationships with others

There was concern among interviewees about the impact that PrEP use might have on their personal relationships. Interestingly, despite the non-availability of PrEP in the UK, interviewees were acutely aware of the social stigma surrounding it, embodied by references to the "Truvada Whore" in the US context (Spieldenner, 2016). Individuals' awareness of this stigma informed their own evaluation of PrEP:

> There is a bit of shame, you know, when you don't use condoms and like what you supposed to do? Tell a guy "oh, we don't need to worry about using condoms because I'm taking a tablet that lets me fuck raw?" It is a bit slutty sounding. (Ian, HIV-negative)

> I often wonder how people would judge me for taking PrEP. In my culture (South Asian) let's say we have a conservative culture… My parents don't even know I'm gay. (Raj, HIV-negative)

Like Ian and Raj, several HIV-negative individuals felt uneasy about the potential social consequences of disclosing PrEP use to others. This could be attributed to the coercive social norm of using condoms and the consequential social stigma appended to non-use of condoms among MSM. While non-use of condoms may be socially represented as irresponsible and reckless, condomless sex is nevertheless practiced though not discussed openly (Shernoff, 2006). There was a pervasive perception among interviewees that PrEP and condoms were mutually exclusive and would therefore not be used in conjunction. Individuals avoided enthusiasm about non-use of condoms as some felt that this would portray them as "slutty" and "irresponsible" and there was, thus, a discernible sense of shame surrounding PrEP use in lieu of condoms (McDavitt & Mutchler, 2014).

Similarly, Raj feared judgement from others, although his account exhibited an additional layer of complexity. While most respondents considered PrEP through the lens of their gay identity, which was generally recognized as placing them at increased risk of HIV exposure, some also considered PrEP from the perspective of other identities, such as their ethno-cultural group membership. Raj described his ethno-cultural ingroup as "conservative" which had discouraged him from disclosing his sexual identity to his parents and other ingroup members. Raj's socialization in his ethno-cultural group appeared to have led to increased shame surrounding aspects of his sexual identity, including how to safeguard his sexual health as a MSM. Consequently, he worried about the added stigma that he might face as a PrEP user, and he anticipated difficulties in concealing his PrEP use from family members.

There were also some positive observations about PrEP among HIV-negative interviewees:

> PrEP seems to give you a lot of choice though, I've got to say … I mean that sometimes you can't really have that conversation about what you want to do and don't want, like in a condom kind of sense, but with PrEP you'd take it in the morning right? That's good. (Andy, HIV-negative)

MSM can find it difficult to discuss HIV and to negotiate condom use particularly before/ during a sexual encounter (Shernoff, 2006). Andy, who had previously used the metaphor of "pumping drugs into your body" in his reflections on PrEP, did acknowledge the self-efficacy that PrEP might provide in relation to sexual health. He felt that this would enable individuals to take control of their sexual health without external pressures from others. Some interviewees did acknowledge that PrEP was safer than relying on one's sexual partner to report their HIV status accurately, but few HIV-negative individuals reported willingness to use it themselves. This could be attributed to the social stigma surrounding it.

HIV-positive respondents felt optimistic about the positive impact that PrEP might have for their relationships with HIV-negative men, largely by removing the need to discuss HIV status at all:

> At the moment, it is difficult for me to imagine myself with a negative partner … I think PrEP could take away the barrier that exists between positive and negative guys. (Pedro, HIV-positive)

HIV status has come to constitute a group membership for many individuals, which has given rise to group divisions and problematic intergroup relations between HIV-negative and HIV-positive individuals (see also Grant & Koester, 2016). Among many HIV-negative individuals, this has led to the formation of negative and demeaning stereotypes about HIV-positive individuals, and many HIV-positive individuals consequently anticipate rejection from serodiscordant partners. Pedro could not imagine a romantic relationship with an HIV-negative partner because he had experienced the tensions that a positive serostatus can create in a serodiscordant relationship, such as fear of transmission. However, he perceived PrEP as a potential means of dismantling group divisions and problematic intergroup relations ("the barrier") between HIV-negative and HIV-positive people, largely because it can reduce the risk of HIV transmission and, thus, reduce anxieties surrounding sexual intimacy. Similarly, Sam's account suggested that PrEP could be liberating for him, as an HIV-positive MSM:

> I heard about it when I was in the US and I hooked up with a guy who had put it on his profile[6] "on PrEP" and I was like "what's that?" and he explained it, like it's my way of protecting myself from HIV and I was like "awesome" because to be honest I've never liked condoms. (Sam, HIV-positive)

Fear of HIV transmission can constitute a serious impediment to positive interpersonal relations between HIV-negative and HIV-positive individuals. HIV-positive individuals may experience fear of infecting their partners which can lead to sexual abstinence, anxiety and other negative social psychological outcomes. Some individuals choose not to use condoms for a variety of reasons (Shernoff, 2006). Sam perceived PrEP as a means of enjoying condomless sexual intercourse without the associated anxiety of onward transmission. For Sam and other HIV-positive individuals, PrEP had the potential to shift the perceived responsibility of HIV prevention *from* the HIV-positive individual to the HIV-negative PrEP user. Moreover, at a psychological level, PrEP could potentially alleviate negative emotions such as anxiety, fear and indeed guilt when HIV-positive individuals prefer not to use a condom in a sexual encounter with an individual of a negative or unknown HIV status.

3.3. Stigma and categorization

Participants were acutely aware of the social stigma surrounding PrEP due to its anchoring to condomless sex and sexual risk-taking, which led some of the HIV-negative interviewees to distance themselves from it:

> It [PrEP] wouldn't benefit me. I don't take many risks, not much more than most guys on the scene. I suppose it's for someone high-risk. (Alan, HIV-negative)
>
> Jack (HIV-negative): I'm not like taking that many risks really so I've never thought this is for me.
>
> Interviewer: What do you see as a risk?
>
> Jack: Someone who is out at chemsex parties every weekend.

Interviewees correctly noted that PrEP was intended for individuals at high risk of HIV infection, but there was a clear social stigma appended to the category "high risk". Accordingly, HIV-negative individuals sought to distance themselves from this category in their reflections on PrEP. Alan resisted the category "high risk" by attenuating the magnitude of the sexual risks that he took. He engaged in a form of downward comparison[7] with "most guys on the [gay] scene" in order to present his own risk-taking as relatively trivial in contrast to *others*' risk-taking. Indeed, Jack anchored the high risk category to participation in "chemsex" (drug use in sexualized settings) which itself carries the double stigma of casual sex with multiple partners and drug use (Bourne, Reid, Hickson, Torres Rueda, & Weatherburn, 2014). He was able to avoid self-positioning in this stigmatized category by constructing participation in chemsex as a central criterion for PrEP use. Although Jack did not engage in chemsex, he did report condomless sexual encounters with multiple casual partners, which in fact did highlight his risk of HIV exposure. In resisting the stigmatized category "high risk", Alan and others hastily concluded that PreP would not be of benefit to them. Furthermore, PrEP was anchored to sexual promiscuity, which further accentuated its stigma:

> I read an article that said "Truvada Whore"... It must be because this pill lets you have sex without condoms with loads of guys. I don't really want to be that guy, to be fair. (Ian, HIV-negative)

Ian invoked the category "Truvada Whore" (an objectification of PrEP users) in order to illustrate the stigma of PrEP. More specifically, it was perceived as facilitating condomless sex with multiple partners. Given that HIV stigma can challenge self-esteem and cause depression (Lee, Kochman, & Sikkema, 2002), it is natural that individuals would wish to distance themselves from it. The desire to resist the stigmatized category of "Truvada Whore" led some interviewees to reject the prospect of PrEP. Social stigma was similarly discernible in HIV-positive interviewees' reflections on PrEP, which further contributed to the cultural representation of PrEP as conducive to blithe risk-taking:

> In my generation and in my culture it was different. You didn't talk about safer sex, or protection or anything, but now young guys are just being really risky. I reckon PrEP will increase this. (Pete, HIV-positive)

> And it's (PrEP), it's. I'm not saying that's a cause [of sexual risk-taking]. But it's a contributor to, you know, people having more and more relaxed attitudes towards it. (Joe, HIV-positive)

> The Prepsters[8] don't seem to give a shit about protecting themselves. They just think "HIV? Piece of cake" which it is not. (Samuel, HIV-positive)

Intergroup dynamics played an important role in participants' thinking vis-à-vis PrEP. HIV-positive respondents differentiated themselves from HIV-negative MSM whom they viewed as excessively complacent about the risks associated with condomless sex. Given their positive serostatus, they regarded the consistency of their own condom use as a non-issue but appeared to stigmatize MSM who did not consistently use condoms, thereby contributing to the stigma of unprotected casual sex. Joe euphemistically referred to "relaxed attitudes" towards safer sex, while Sam more forcefully described the complacency of HIV-negative men who reportedly hold misguided, erroneous views concerning HIV. There was a further layer of social group dynamics observable in the accounts of older HIV-positive MSM who had been diagnosed during the early stages of the epidemic. Older participants living with HIV lamented the complacency of younger gay men whom they viewed as blithely engaging in sexual risk-taking behaviours. PrEP use was thus anchored to irresponsibility. Pete, who was diagnosed in the 1980s, differentiated the "culture" of his generation from that of younger generations. He attributed his infection to the lack of public knowledge concerning HIV at that time and, conversely, criticized sexual risk-taking among younger gay men who were socialized in a culture cognizant of the risk of HIV infection. Like Joe who was diagnosed recently, some HIV-positive interviewees viewed PrEP as a "contributor" to the general complacency regarding HIV among gay men:

> For a lot of people it's [PrEP] used as an excuse for people to have sex without a condom. (James, HIV-positive)

> PrEP for me basically means "I'm neg and I like it raw". (Mike, HIV-positive)

Although most HIV-positive interviewees highlighted the potential benefits of PrEP for decreasing HIV stigma, they themselves contributed to the social stigma concerning PrEP. James perceived it as an "excuse" to engage in risky sexual behaviors, thereby challenging the notion that PrEP provides an added layer of protection (in addition to condoms) against HIV infection. Similarly, Mike interpreted PrEP use as a means of implicitly expressing their desire to engage in condomless sex. PrEP was viewed as potentially facilitating "irresponsible" sexual behavior. Those HIV-positive interviewees who endorsed it in principle also warned of the potential public health risks associated with it:

> But I think as long as it is used correctly. It probably shouldn't be something that anyone can just decide they can go on PrEP and because that may potential encourage them [to have condomless sex]. (Ken, HIV-positive)

> I say to people that it's a temporary measure and it's just going to allow people to have riskier activities. (Pete, HIV-positive)

While cognizant of some of the benefits of PrEP, Ken and Pete reiterated the concerns raised by other HIV-positive interviewees surrounding the increase in sexual risk-taking. Ken implied that it would not be "used correctly", i.e. in conjunction with condoms. Thus, he advocated greater regulation of PrEP. He and others found it a risky public health strategy to make PrEP available to those individuals whose condom use is already inconsistent. Incidentally, there is a strong argument for offering PrEP to people at high risk of HIV infection *because* their condom use is inconsistent. Similarly, Pete did not regard PrEP as a particularly useful long-term public health strategy for reducing HIV incidence, referring to it as a "temporary measure" that might increase risk-taking. Some HIV-positive interviewees emphasized the status of PrEP as a *temporary* public health measure.

4. Discussion

While most previous studies have explored PrEP acceptability among individuals involved in clinical trials, i.e. those already taking PrEP, the present study set out to understand perceptions of PrEP among HIV-negative MSM who had never used it and among HIV-positive MSM who would not personally benefit from PrEP as a chemoprophylaxis but who may nevertheless be affected socially and psychologically by its availability. Interviewees strove to construct a social representation of PrEP that could enable them to think and communicate about it. Among HIV-negative MSM, these representations were characterized by social stigma that focused largely around HIV stigma, sexual risk-taking, and shame surrounding unprotected sex. HIV-positive interviewees also reproduced social stigma in relation to PrEP but unanimously acknowledged the potential social psychological benefits of implementing the preventive tool, particularly for improving interpersonal relations between people of serodiscordant status (Grant & Koester, 2016). Therefore, it is possible to refer to two distinct social representations: (1) among HIV-negative individuals, there was a representation of PrEP as a risky solution for "high risk" individuals, and (2) among HIV-positive individuals, there was a representation of PrEP as potentially enhancing interpersonal relations. These representations guided interviewees' engagement with PrEP.

Despite the high effectiveness of PrEP as an HIV prevention tool, as demonstrated in numerous clinical trials, there appears to be considerable scepticism towards PrEP among HIV-negative MSM who could potentially benefit from it. There was generally low awareness of the mechanisms of PrEP, which led individuals to attempt to make sense of the biomedical prevention method by anchoring it to other things that they already knew about (Moscovici, 1988). For instance, some interviewees compared PrEP to a vaccine and, thus, rejected it as an inferior HIV prevention tool, partly because an HIV vaccine has been represented as the prime goal of HIV science. Others anchored PrEP to older

generations of ART, such as zidovudine, which caused visible physical changes, such as lipodystrophy in HIV patients (Bogner et al., 2001). This led them to express concerns about the possible long-term side effects of using PrEP. Moreover, some interviewees manifested scepticism about its effectiveness because of a lack of trust in science, which was anchored to the early stages of the HIV epidemic during which many people were infected with HIV through blood transfusions and blood plasma products. Thus, uncertainty about possible side effects and the effectiveness of PrEP induced fear among interviewees. This could constitute a barrier to PrEP, as belief in the effectiveness of PrEP is key to its uptake (Chemnasiri et al., 2015).

Previous research and commentary on PrEP indicates that there is stigma surrounding the prevention tool because it is regarded as facilitating condomless anal sex (Jaspal & Nerlich, 2016). Although PrEP has been represented as particularly suitable for MSM at high risk of HIV acquisition, such as those who do not use condoms consistently or those who have had a rectal STI in the last six months, the interview data clearly demonstrated that most HIV-negative interviewees resisted self-inclusion in the category "high risk." This could be attributed to the social stigma appended to this category. In view of the stigma, they were motivated socially and psychologically to present themselves as "low risk" in order to protect their self-image. This can be attributed to the general perception that those at "high risk" are careless, lazy, irresponsible and foolish. Moreover, some interviewees anchored the notion of "high risk" to socially stigmatized sexual behaviors, such as engagement in drug use in sexualized settings ("chemsex") and, thus, viewed themselves as ineligible for PrEP. Several theories of identity construction and self-presentation, such as Identity Process Theory (Jaspal & Breakwell, 2016), emphasize the importance of maintaining a sense of self-esteem, that is, a positive self-conception. It is easy to see how self-inclusion in the category "high risk" could potentially challenge one's self-esteem as well as one's perceived worth in the eyes of others, which might prompt them to distance themselves from this category. This is consisistent with Joffe's (2007) notion of "othering" risk, which indicates the human tendency to attribute risk to others and to view oneself as being at low risk. Incidentally, several of the HIV-positive interviewees also appeared to contribute to the social stigma surrounding PrEP by linking its use to increased sexual risk-taking and by constructing PrEP users as complacent about safer sex practices.

Despite the social stigma that surrounded PrEP, which could plausibly discourage individuals from considering it a viable preventive option for themselves, both HIV-negative and HIV-positive MSM acknowledged the potential impact of PrEP on their interpersonal relations with others. HIV-negative men generally viewed PrEP as inducing tensions in interpersonal relations because they feared negative reactions from other people. For instance, some interviewees had not disclosed their sexual identity to others and felt that PrEP would add a further layer of complexity to their (hidden) sexual identities, while others feared that others might mistake PrEP for ART which reflected the stigma around HIV (Starks, Rendina, Breslow, Parsons, & Golub, 2013). Furthermore, in view of the stigma surrounding casual (condomless) sex, individuals felt that they would be reluctant to disclose their PrEP use to other people for fear of being labelled as sexually promiscuous or as sexual risk-takers. Thus, social stigma and the desire for positive self-presentation clearly underpinned the ways in which interviewees engaged with PrEP.

Although stigma and self-presentation also play a role in the development of attitudes towards PrEP among HIV-positive MSM, they appeared to hold more favorable social representations of the prevention tool. More specifically, PrEP was perceived as potentially reducing the risk of onward transmission which alleviated the feelings of uncertainty and anxiety that many HIV-positive MSM may experience in relation to sex with HIV-negative men (Bourne, Hickson, Keogh, Reid, & Weatherburn, 2012). Several individuals anticipated decreased guilt in relation to non-disclosure of HIV status and to engagement in condomless sex with other individuals of unknown HIV status. Incidentally, this was said to occur in contexts in which they did not feel comfortable disclosing their status or in contexts in which their partners did not wish to use condoms. More generally, while HIV-negative MSM anticipated potential problems in managing interpersonal relations with others due to PrEP, HIV-positive individuals conversely regarded the preventive tool as a means of *enhancing*

interpersonal relations with others, particularly with HIV-negative partners. Some HIV-positive interviewees described their negative experiences of disclosing their HIV status to sexual partners, such as rejection and even derision (see also Courtenay-Quirk et al., 2006). Furthermore, there were accounts of how their HIV diagnosis had created interpersonal barriers between themselves and their existing HIV-negative partners, which sometimes culminated in relationship breakdown. This could severely challenge self-esteem and overall wellbeing among HIV patients (see Palmer & Bor, 2001). Conversely, there was a perception that PrEP might alleviate their own fears of transmitting the virus as well as their HIV-negative partners' fears of contracting it during sex.

4.1. Implications

Given the small-scale nature of this interview study, the results are not easily generalizable to the MSM population. However, the data do shed light on some of the potential social and psychological challenges associated with the implementation and indeed uptake of PrEP among MSM, a population that is disproportionately affected by HIV (Fish, Papaloukas, Jaspal, & Williamson, 2016). The results illuminate issues that will need to be addressed if PrEP is made available on the UK NHS. Social representations observable in press reporting on PrEP (Jaspal & Nerlich, 2016) appear to be reproduced by HIV-negative MSM although there was a general leaning towards more negative representations, particularly when PrEP was discussed as a *personal* HIV prevention option. While individuals perceived it as a potentially viable HIV prevention tool at a population level, many rejected its suitability for themselves at a personal level. This is not at all to suggest that most MSM in the UK are opposed to personal use of PrEP and that they would refrain from using it if it were available. However, these data do elucidate some of the concerns manifested by MSM that could potentially discourage them from initiating and sustaining use of PrEP during episodes of sexual risk (Gallagher et al., 2014).

The prevalence of social stigma in relation to HIV, casual condomless sex ("slut shaming"), and PrEP could plausibly inhibit access to the prevention method among those at highest risk of HIV infection. If PrEP does become available on the NHS, physicians may recommend it to their patients who appear to be at high risk of HIV acquisition. However, patients themselves may resist PrEP if they do not (wish to) view themselves as "high risk". It is, thus, necessary to provide consistent and accurate information about HIV risk factors so that HIV-negative MSM can appraise their HIV risk more accurately and take adequate action to reduce their risk. Indeed, it has been demonstrated in recent research that those who perceive themselves to be at low risk are less likely to be knowledgeable about HIV (Jaspal et al., 2016). Moreover, adherence to PrEP, which is key to its effectiveness, could be undermined by the social stigma that clearly surrounds it. People may wish to exit the stigmatized category "PrEP user" or miss doses of PrEP to avoid disclosure of their PrEP use. In short, HIV-negative MSM may feel uneasy about initiating and sustaining their use of PrEP due to social stigma.

The introduction of PrEP could also benefit HIV-positive patients, many of whom experience stigma, prejudice and rejection particularly in their interactions with HIV-negative individuals. These negative experiences may lead to poor social, psychological and behavioral outcomes, such as poor adherence to HIV medication, low self-esteem, depression, self-isolation, alcohol/susbstance use, suicide ideation, and sexual risk-taking (Courtenay-Quirk et al., 2006). PrEP may generate greater awareness, understanding and discussion of HIV among MSM, thereby enhancing interpersonal relations between HIV-negative and HIV-positive individuals. The positive implications for HIV-positive MSM's wellbeing may be considerable.

It is clear that PrEP is protective against HIV, but there are social, behavioral and psychological barriers to its success at a population level. In order to reap the full benefits of PrEP, the prevention tool needs to be communicated more effectively so that MSM are made aware of it and can understand its mechanisms and the contexts in which it is likely to be most useful. Indeed, in previous quantitative research it has been shown that prior knowledge of PrEP is associated with a 1.5 higher uptake (Cohen et al., 2015). Moreover, greater awareness and understanding would help alleviate

some of the concerns manifested by HIV-negative MSM concerning the effectiveness of PrEP and its potential long-term side effects, which were cited as possible barriers to its uptake (see also Grant et al., 2014). When PrEP is presented as being "86% effectiveness against HIV", [9]for instance, it may understandably be resisted by individuals who wonder about the consequential 14% risk of infection – the possible reasons for this level of effectiveness (e.g. poor adherence in some of the clinical trial participants) ought to be explained to reduce concerns. Furthermore, there is clearly a need to challenge the social stigma associated with PrEP so that it can be perceived as a viable *personal* prevention option among those individuals who may genuinely benefit from it. Campaigns that seek to *normalize* PrEP as one possible component of the existing HIV prevention toolbox may radically challenge negative perceptions and stereotypes that could inhibit access to PrEP. Rather than marketing PrEP as a drug for "guys that like to party",[10] for instance, it would be more effective to present it as a "further level of protection" against HIV, *in addition to* condoms and other prevention strategies. The societal perception that PrEP and condoms are mutually exclusive engenders further stigma and division at a time where acceptance and unity are key.

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Notes
1. http://www.unaids.org/en/resources/campaigns/global-report2013/factsheet.
2. According to BHIVA guidelines (Fidler et al., 2013), an undetectable HIV viral load is defined as <50 copies/mL.
3. http://www.tht.org.uk/sexual-health/About-HIV/Pre-exposure-Prophylaxis; http://www.prepaccess.org.uk/.
4. US Centre for Disease Control website http://www.cdc.gov/hiv/basics/prep.html.
5. Treatment as prevention (also referred to as "TasP") is a public health strategy for reducing HIV incidence whereby HIV-positive individuals are allowed to commence ART regardless of their CD4 count provided that they are ready to commit to treatment. ART reduces the individual's viral load to an "undetectable" level. A suppressed viral load allows the CD4 count to rise, on the one hand, and renders the individual less infectious to others, on the other.
6. The participant was referring to an online profile on a geospatial gay social networking mobile application.
7. This refers to the process of comparing oneself to others on dimensions that will lead to a more favorable self-evaluation and, thus, to enhanced self-esteem (Wills, 1981).
8. Prepsters are a UK-based pressure group that "aims to educate and agitate for PrEP access in England and beyond." http://prepster.info/about/.
9. This is the level of effectiveness reported by the PROUD clinical trial in the UK (McCormack et al., 2016).
10. Gilead Sciences funded a commercial for PrEP focusing on the slogan "I like to party". http://www.advocate.com/hiv-aids/2015/11/05/watch-new-prep-campaign-targets-men-who-party.

References
Abraham, C., Krahé, B., Dominic, R., & Fritsche, I. (2002). Do health promotion messages target cognitive and behavioural correlates of condom use? A content analysis of safer sex promotion leaflets in two countries. *British Journal of Health Psychology, 7*, 227–246. http://dx.doi.org/10.1348/135910702169466

Anderson, P. L., Glidden, D. V., Liu, A., Buchbinder, S., Lama, J. R., Guanira, J. V., ... Grant, R. M. (2012). Emtricitabine-tenofovir concentrations and pre-exposure prophylaxis efficacy in men who have sex with men. *Science Translational Medicine, 4*, 151ra25.

Attia, S., Egger, M., Müller, M., Zwahlen, M., & Low, N. (2009). Sexual transmission of HIV according to viral load and antiretroviral therapy: Systematic review and meta-analysis. *AIDS, 23*, 1397–1404. http://dx.doi.org/10.1097/QAD.0b013e32832b7dca

Baeten, J. M., Donnell, D., Ndase, P., Mugo, N. R., Campbell, J. D., Wangisi, J., ... Celum, C. (2012). Antiretroviral prophylaxis for HIV prevention in heterosexual men and women. *The New England Journal of Medicine, 367*, 399–410.

Barash, E. A., & Golden, M. (2010). Awareness and use of HIV pre-exposure prophylaxis among attendees of a seattle gay pride event and sexually transmitted disease clinic. *AIDS Patient Care & STDs, 24*, 689–691. http://dx.doi.org/10.1089/apc.2010.0173

Bogner, J. R., Vielhauer, V., Beckmann, R. A., Michl, G., Wille, L., Salzberger, B., & Goebel, F. D. (2001). Stavudine versus zidovudine and the development of lipodystrophy. *JAIDS Journal of Acquired Immune Deficiency Syndromes, 27*, 237–244. http://dx.doi.org/10.1097/00126334-200107010-00004

Bourne, A., Hickson, F., Keogh, P., Reid, D., & Weatherburn, P. (2012). Problems with sex among gay and bisexual men with diagnosed HIV in the United Kingdom. *BMC Public Health, 12*, 916. http://dx.doi.org/10.1186/1471-2458-12-916

Bourne, A., Reid, D., Hickson, F., Torres Rueda, S., & Weatherburn, P. (2014). *The Chemsex study: Drug use in sexual settings among gay & bisexual men in Lambeth, Southwark & Lewisham*. London: Sigma Research, London School of Hygiene & Tropical Medicine. www.sigmaresearch.org.uk/chemsex.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*, 77–101. http://dx.doi.org/10.1191/1478088706qp063oa

Breakwell, G. M. (2014). Identity and social representations. In R. Jaspal & G. M. Breakwell (Eds.), *Identity process theory: Identity, social action and social change* (pp. 118–134). Cambridge: Cambridge University Press. http://dx.doi.org/10.1017/CBO9781139136983

Brooks, R. A., Landovitz, R. J., Kaplan, R. L., Lieber, E., Lee, S. J., & Barkley, T. W. (2012). 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, 26*, 87–94. http://dx.doi.org/10.1089/apc.2011.0283

Chemnasiri, T., Varangrat, A., Amico, K. R., Chaikummao, S., Chitwarakorn, A., Dye, B. J., ... The HPTN 067/ADAPT Study Team. (2015). Facilitators and barriers affecting PrEP adherence among Thai men who have sex with men in the HPTN 067/ADAPT study, a qualitative analysis. *IAS 2015*, Vancouver, British Columbia, Canada.

Cohen, S. E., Vittinghoff, E., Bacon, O., Doblecki-Lewis, S., Postle, B. S., Feaster, D. J., ... Liu, A. Y. (2015). High interest in preexposure prophylaxis among men who have sex with men at risk for HIV infection. *JAIDS Journal of Acquired Immune Deficiency Syndromes, 68*, 439–448. http://dx.doi.org/10.1097/QAI.0000000000000479

Courtenay-Quirk, C., Wolitski, R. J., Parsons, J. T., Gómez, C. A., & The Seropositive Urban Men's Study Team. (2006). Is HIV/AIDS stigma dividing the gay community? Perceptions of HIV–positive men who have sex with men. *AIDS Education & Prevention, 18*, 56–67. http://dx.doi.org/10.1521/aeap.2006.18.1.56

Dolezal, C., Frasca, T., Giguere, R., Ibitoye, M., Cranston, R. D., Febo, I., ... Carballo-Diéguez, A. (2015). Awareness of post-exposure prophylaxis (PEP) and pre-exposure prophylaxis (PrEP) is low but interest is high among men engaging in condomless anal sex with men in Boston, Pittsburgh, and San Juan. *AIDS Education & Prevention, 27*, 289–297. http://dx.doi.org/10.1521/aeap.2015.27.4.289

Eaton, L. A., Driffin, D. D., Bauermeister, J., Smith, H., & Conway-Washington, C. (2015). Minimal awareness and stalled uptake of pre-exposure prophylaxis (PrEP) among at risk, HIV-negative, black men who have sex with men. *AIDS Patient Care & STDs, 29*, 423–429. http://dx.doi.org/10.1089/apc.2014.0303

Fidler, S., Anderson, J., Azad, Y., Delpech, V., Evans, C., Fisher, M., ... Cairns, G. (2013). Position statement on the use of antiretroviral therapy to reduce HIV transmission, January 2013: The British HIV association (BHIVA) and the expert advisory group on AIDS (EAGA). *HIV Medicine, 14*, 259–262. http://dx.doi.org/10.1111/hiv.2013.14.issue-5

Fish, J., Papaloukas, P., Jaspal, R., & Williamson, I. (2016). Equality in sexual health promotion: A systematic review of effective interventions for black and minority ethnic men who have sex with men. *BMC Public Health, 16*, 810. doi:10.1186/s12889-016-3418-x

Flash, C., Landovitz, R., Giler, R. M., Ng, L., Magnuson, D., Wooley, S. B., & Rawlings, K. (2014). Two years of Truvada for pre-exposure prophylaxis utilization in the US. *Journal of the International AIDS Society, 17*, 19730.

Fogarty, L., Roter, D., Larson, S., Burke, J., Gillespie, J., & Levy, R. (2001). Patient adherence to HIV medication regimens: A review of published and abstract reports. *Patient Education & Counseling, 46*, 93–108.

Gallagher, T., Link, L., Ramos, M., Bottger, E., Aberg, J., & Daskalakis, D. (2014). Self-perception of HIV risk and candidacy for pre-exposure prophylaxis among men who have sex with men testing for HIV at commercial sex venues in New York city. *LGBT Health, 1*, 218–224. http://dx.doi.org/10.1089/lgbt.2013.0046

Gamarel, K. E., & Golub, S. A. (2015). Intimacy motivations and pre-exposure prophylaxis (PrEP) adoption intentions among HIV-negative men who have sex with men (MSM) in romantic relationships. *Annals of Behavioral Medicine, 49*, 177–186. http://dx.doi.org/10.1007/s12160-014-9646-3

Golden, M. R., Stekler, J., Hughes, J. P., & Wood, R. W. (2008). HIV serosorting in men who have sex with men: Is it safe? *JAIDS Journal of Acquired Immune Deficiency Syndromes, 49*, 212–218. http://dx.doi.org/10.1097/QAI.0b013e31818455e8

Golub, S. A., Gamarel, K. E., Rendina, H. J., Surace, A., & Lelutiu-Weinberger, C. L. (2013). From efficacy to effectiveness: Facilitators and barriers to PrEP acceptability and motivations for adherence among MSM and transgender women in New York city. *AIDS Patient Care & STDs, 27*, 248–254. http://dx.doi.org/10.1089/apc.2012.0419

Grant, R. M., Anderson, P. L., McMahan, V., Liu, A., Amico, K. R., Mehrotra, M., ... Glidden, D. V. (2014). Uptake of pre-exposure prophylaxis, sexual practices, and HIV incidence in men and transgender women who have sex with men: A cohort study. *The Lancet Infectious Diseases, 14*, 820–829. http://dx.doi.org/10.1016/S1473-3099(14)70847-3

Grant, R., Lama, J. R., Anderson, P. L., McMahan, V., Liu, A. Y., Vargas, L., ... Glidden, D. V. (2010). Preexposure chemoprophylaxis for HIV prevention in men who have sex with men. *New England Journal of Medicine, 363*, 2587–2599. http://dx.doi.org/10.1056/NEJMoa1011205

Grant, R. M., & Koester, K. A. (2016). What people want from sex and preexposure prophylaxis. *Current Opinion in HIV and AIDS, 11*, 3–9. http://dx.doi.org/10.1097/COH.0000000000000216

Grupe, D. W., & Nitschke, J. B. (2013). Uncertainty and anticipation in anxiety: An integrated neurobiological and psychological perspective. *Nature Reviews. Neuroscience, 14*, 488–501. http://dx.doi.org/10.1038/nrn3524

Holt, M., Lea, T., Murphy, D., Ellard, J., Rosengarten, M., Kippax, S., & De Wit, J. (2014). Willingness to use HIV pre-exposure prophylaxis has declined among Australian gay and bisexual men. *JAIDS Journal of Acquired Immune Deficiency Syndromes, 67*, 222–226. http://dx.doi.org/10.1097/QAI.0000000000000287

Jaspal, R., & Breakwell, G. M. (Eds.). (2016). *Identity process theory: Identity, social action and social change*. Cambridge: Cambridge University Press.

Jaspal, R., Jamal, Z., Paccoud, I., Sekhon, P., Yap, C., & Wadibia, M. (2016). Sexual health knowledge, attitudes and practices among BAME MSM: A mixed methods study. *Paper presented at the 22nd Annual Conference of BHIVA*, Manchester, 19–22 April 2016.

Jaspal, R., & Nerlich, B. (2016). Polarised reporting about HIV prevention: Social representations of pre-exposure prophylaxis in the UK press. *Health: An Interdisciplinary Journal for the Social Study of Health, Illness and Medicine*. doi:10.1177/1363459316649763

Joffe, H. (2007). Identity, self-control and risk. In G. Moloney & I. Walker (Eds.), *Social representations and identity* (pp. 197–213). Basingstoke: Palgrave. http://dx.doi.org/10.1057/9780230609181

Koester, K., Amico, R., Liu, A., McMahan, V., Hosek, S., Mayer, K., & Grant, R. (2014). Sex on PrEP: qualitative findings from the iPrEx Open Label Extension (OLE) in the United States. *AIDS 2014*. Melbourne.

Kubicek, K., Arauz-Cuadra, C., & Kipke, M. D. (2015). Attitudes and perceptions of biomedical HIV prevention methods: Voices from young men who have sex with men. *Archives of Sexual Behavior, 44*, 487–497. http://dx.doi.org/10.1007/s10508-014-0398-8

Lee, R. S., Kochman, A., & Sikkema, K. J. (2002). Internalized stigma among people living with HIV-AIDS. *AIDS and Behavior, 6*, 309–319. http://dx.doi.org/10.1023/A:1021144511957

McCormack, S., Dunn, D. T., Desai, M., Dolling, D. I., Gafos, R., Sullivan, A. K., … Gill, O. N. (2016). Pre-exposure prophylaxis to prevent the acquisition of HIV-1 infection (PROUD): Effectiveness results from the pilot phase of a pragmatic open-label randomised trial. *The Lancet, 387*, 53–60. http://dx.doi.org/10.1016/S0140-6736(15)00056-2

McDavitt, B., & Mutchler, M. G. (2014). "Dude, you're such a slut!" barriers and facilitators of sexual communication among young gay men and their best friends. *Journal of Adolescent Research, 29*, 464–498. http://dx.doi.org/10.1177/0743558414528974

Moscovici, S. (1988). Notes towards a description of social representations. *European Journal of Social Psychology, 18*, 211–250. http://dx.doi.org/10.1002/(ISSN)1099-0992

Palmer, R., & Bor, R. (2001). The challenges to intimacy and sexual relationships for gay men in HIV serodiscordant relationships: A pilot study. *Journal of Marital and Family Therapy, 27*, 419–431. http://dx.doi.org/10.1111/j.1752-0606.2001.tb00337.x

Prestage, G., Down, I. A., Bradley, J., McCann, P. D., Brown, G., Jin, F., & Hurley, M. (2012). Is optimism enough? Gay men's beliefs about HIV and their perspectives on risk and pleasure. *Sexually Transmitted Diseases, 39*, 167–172. http://dx.doi.org/10.1097/OLQ.0b013e31823e67a9

Public Health England. (2015). *HIV in the UK–situation report 2015: Incidence, prevalence and prevention.* London: Author. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/477702/HIV_in_the_UK_2015_report.pdf

Rowniak, S. (2009). Safe sex fatigue, treatment optimism, and serosorting: New challenges to HIV prevention among men who have sex with men. *Journal of the Association of Nurses in AIDS Care, 20*, 31–38. http://dx.doi.org/10.1016/j.jana.2008.09.006

Saberi, P., Gamarel, K. E., Neilands, T. B., Comfort, M., Sheon, N., Darbes, L. A., & Johnson, M. O. (2012). Ambiguity, ambivalence, and apprehensions of taking HIV-1 pre-exposure prophylaxis among male couples in San Francisco: A mixed methods study. *PLoS One, 7*, e50061. http://dx.doi.org/10.1371/journal.pone.0050061

Shernoff, M. (2006). *Without condoms: Unprotected sex, gay men & barebacking*. London: Routledge.

Smith, J. A., & Osborn, M. (2008). Interpretative phenomenological analysis. In J. Smith (Ed.), *Qualitative psychology: A practical guide to research methods* (pp. 53–80). London: Sage.

Spieldenner, A. (2016). PrEP whores and HIV prevention: The queer communication of HIV pre-exposure prophylaxis. *Journal of Homosexuality, 63*, 1685–1697.

Starks, T. J., Rendina, H. J., Breslow, A. S., Parsons, J. T., & Golub, S. A. (2013). The psychological cost of anticipating HIV stigma for HIV-negative gay and bisexual men. *AIDS & Behavior, 17*, 2732–2741. http://dx.doi.org/10.1007/s10461-013-0425-0

Tangmunkongvorakul, A., Chariyalertsak, S., Amico, K. R., Saokhieo, P., Wannalak, V., Sangangamsakun, T., … Grant, R. (2013). Facilitators and barriers to medication adherence in an HIV prevention study among men who have sex with men in the iPrEx study in Chiang Mai, Thailand. *AIDS Care, 25*, 961–967. http://dx.doi.org/10.1080/09540121.2012.748871

van Kesteren, N. M., Hospers, H., Kok, G., & van Empelen, P. (2005). Sexuality and sexual risk behavior in HIV-positive men who have sex with men. *Qualitative Health Research, 15*, 145–168. http://dx.doi.org/10.1177/1049732304270817

Wade Taylor, S., Mayer, K. H., Elsesser, S. M., Mimiaga, M. J., O'Cleirigh, C., & Safren, S. A. (2014). Optimizing content for pre-exposure prophylaxis (PrEP) counseling for men who have sex with men: Perspectives of PrEP users and high-risk prep naive men. *AIDS Behavior, 18*, 871. doi:10.1007/s10461-013-0617-7.

Wills, T. A. (1981). Downward comparison principles in social psychology. *Psychological Bulletin, 90*, 245–271. http://dx.doi.org/10.1037/0033-2909.90.2.245

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