

A 'Morning-After' Pill for HIV? Social Representations of Post-Exposure Prophylaxis for HIV in the British Print Media

Rusi Jaspal*^{a, b} and Brigitte Nerlich^c

^aFaculty of Health & Life Sciences, De Montfort University, Leicester, UK, ^bÅbo Akademi University, Turku, Finland and ^cInstitute for Science and Society, School of Sociology and Social Policy, University of Nottingham, Nottingham, UK

Short title: Social Representations of Post-Exposure Prophylaxis for HIV

* **Corresponding author** Rusi Jaspal, E-mail: rusi.jaspal@cantab.net

Abstract

Post-exposure prophylaxis (PEP) is a bio-medical approach to HIV prevention that is administered after a potential exposure to the virus. Although it was approved in the UK for occupational exposure to HIV among healthcare workers in 1998, PEP has remained a controversial method of preventing HIV infection following sexual exposure. To examine emerging social representations of PEP, we undertook a qualitative thematic analysis of 72 articles published in UK newspapers between 1997 and 2015. We focused on print media, as they still reflect broader societal debates, set the agenda for wider discussions in other media and contribute to shaping public perceptions and policy priorities. Our findings show that there were two major social representations of the use of PEP for HIV prevention amongst gay and bisexual men: a positive social representation of PEP as a relatively straightforward solution, where PEP is metaphorically framed as the 'morning-after pill', and a more negative social representation of PEP as posing risks and yielding uncertain outcomes. We also found a third social representation for the use of PEP amongst public health care workers, where PEP is represented as needed and deserved. The positive representation generally consisted of anecdotal statements, while the negative representation was substantiated by 'expert' and layperson voices, rendering the latter more akin to a hegemonic representation of PEP. We generally found a lack of technical information in all newspapers, an information gap that might inhibit informed discussion and lead to entrenching polarised social representations and to the stigmatisation of some users of PEP.

Keywords

Post-exposure prophylaxis, risk, HIV, HIV prevention, sexual health, public health, media, social representations

Citing this article

Jaspal, R. & Nerlich, B. (in press). A "morning-after" pill for HIV? Social representations of post-exposure prophylaxis (PEP) for HIV in the British print media. *Health, Risk & Society*. <http://dx.doi.org/10.1080/13698575.2016.1222354>

Introduction

HIV/AIDS has been a social and medical problem since the end of the 1980s. Almost as soon as the epidemic started and medical treatments were sought, social scientists began to study the spread of social representations alongside the spread of the disease. The first book to deal with social representations of AIDS from a sociological perspective was published in 1989 and entitled *AIDS: Social representations and social practices* (Aggleton, Hart and Davies, 1989). A reviewer of the book pointed out that

a collaboration between medicine and sociology is required to hasten the development of effective means to prevent and treat HIV infection. To begin this collaborative effort, individuals from each field must learn about the other's work (Smith, 1990, p. 187).

Such collaborations are still called for today in an era when both pre-exposure and post-exposure HIV prophylaxes are becoming mainstream and when social representations are still being formed (Jaspal & Nerlich, 2016).

Post-exposure prophylaxis, or PEP, is a bio-medical approach to HIV prevention that is administered after a potential exposure to the virus. It involves taking anti-HIV medications immediately after a potential exposure to HIV. A three-drug regimen, consisting of two non-nucleoside reverse transcriptase inhibitors (emtricitabine and tenofovir) and an integrase inhibitor (raltegravir), is recommended as a first-line regimen for PEP. If started within 72 hours of exposure to HIV and taken for a period of 28 days, PEP has been found to be protective against HIV infection (Benn et al., 2011). Although it was approved for occupational exposure to HIV among healthcare workers in 1988, PEP has remained a controversial method of preventing HIV infection following sexual exposure. While supporters view it as an effective and, thus, important prevention tool, opponents fear that it can cause serious side effects, increase sexual risk-taking and undermine public health (Fisher, 2005; Richens, Edwards & Sadiq, 2005). Much attitudinal and behavioural research concerning PEP has focused on awareness and potential barriers to access and adherence (de Silva, Miller & March, 2006; Samuel et al., 2008).

However, there has been no analysis of emerging social representations of PEP circulating in old and new media. The aim of this article is to provide initial insights into the emergence and development of social representations of PEP. We focus on discussions of PEP in UK national and regional newspapers between 1997 and 2015 in an attempt to stimulate further research that goes beyond our small-scale study, both geographically and in terms of examining digital social media representations of PEP. We explore how PEP is represented in the UK press and how this bio-medical approach to HIV is positioned in relation to older, better-known medical interventions, and what implications these social representations may have for health, risk and policy.

We focus here on print media, as they still reflect broader societal debates, set the agenda for science and other media, and contribute to shaping public perceptions and policy debates (Reese, Gandy & Grant, 2003). Indeed, a recent report by the Reuters Institute for the Study of Journalism indicates that the

traditional media remain an important source of news for people in the UK and in other European countries (Fletcher & Radcliffe, 2015).

Risk, the medical response and media representations

HIV Prevention

Since the first clinical observations of Acquired Immune Deficiency Syndrome (AIDS) in 1981, 36 million people worldwide have died of AIDS-related illnesses. Moreover, it is estimated that in 2014 36.9 million people were living with Human Immunodeficiency Virus (HIV), the virus that causes AIDS (<http://www.unaids.org/en/resources/campaigns/HowAIDSchangedeverything/factsheet>). HIV prevalence in the UK is approximately 0.18% of the population aged between 15 and 59 – according to the most recent HIV epidemiology report (Public Health, 2015), approximately 103,700 people are currently living with the chronic condition in the UK. Men who have sex with men (MSM) suffer major inequalities in relation to HIV. According to Public Health England (2015), approximately 45,000 MSM were living with HIV in 2014, and in London it is estimated that 1 in 11 MSM did so. In 2014 there were 5850 new diagnosed cases of (sexually transmitted) HIV, of which 57% were among MSM.

In the absence of a vaccine, *prevention* remains the most effective tool against HIV. Encouraging condom use has long been the preferred policy strategy in most countries. Public campaigns such as the 1980s ‘Don’t Die of Ignorance’ campaign in the UK highlighted the importance of condom use (Holland et al., 1993). Although condoms remain a highly effective STI prevention technique, it is clear that not everybody uses them correctly and consistently (Shernoff, 2006). Instead, many people may use other less effective prevention techniques. For instance, individuals may engage in ‘serosorting’, that is, they may have (condomless) sex with people who they believe share their HIV status (Golden et al., 2008). More recently, treatment as prevention has emerged as an effective strategy given that antiretroviral therapy suppresses the HIV-infected individual’s viral load, mostly to ‘undetectable’ levels, thereby rendering the individual less infectious to others (Attia et al., 2009). However, none of these prevention strategies are entirely effective. Rising HIV incidence have led to debates around novel prevention strategies.

Post-exposure prophylaxis: Social, ethical and medical challenges

PEP has been in use since 1988, when it was first developed using zidovudine for healthcare workers potentially exposed to HIV in the workplace. An early interim analysis of PEP suggested that, subject to informed consent, PEP should be administered to healthcare workers very soon after sustaining a possible exposure to HIV (Henderson & Gerberding, 1989). To date, there have been no randomised control trials in humans to determine the effectiveness of PEP due to the ethical problems of withholding a potentially effective prevention method from the control group (Benn et al., 2011). However, one early retrospective study among healthcare workers who had sustained a potential occupational exposure to HIV estimated that PEP reduced the risk of infection by 81% (with a confidence interval of 48-94%) (Cardo et al., 1997). Nevertheless, there have been several animal studies which

have generally demonstrated high effectiveness of PEP. One clinical trial found that, HIV infection was blocked in 100% of macaque monkeys following intravenous inoculation with HIV, provided that PEP was administered within 24 hours of exposure and for 28 days continuously (Tsai et al., 1998).

Following the successful use of PEP to avert occupational exposures to HIV among healthcare workers and its demonstrated effectiveness in animal studies, the use of PEP in the context of sexual exposure to HIV was considered in the early 1990s. In 2006, the British Association of Sexual Health and HIV and the British HIV Association published guidelines on the appropriate use of PEP for non-occupational exposure. The guidelines lay out the circumstances in which PEP is recommended, considered and not recommended (see table 1). As demonstrated in the guidelines, PEP is often regarded as a 'last resort' and is only offered in situations in which risk of exposure is considered to be high.

HIV status of source				
	HIV+ Viral load detectable	HIV+ Viral load undetectable	Status unknown from high prevalence group/area	Status unknown from low prevalence group/area
Receptive anal sex	Recommend	Not recommended	Recommend	Not recommended
Insertive anal sex	Recommend	Not recommended	Consider	Not recommended
Receptive vaginal sex	Recommend	Not recommended	Consider	Not recommended
Insertive vaginal sex	Consider	Not recommended	Consider	Not recommended
Fellatio with ejaculation	Not recommended	Not recommended	Not recommended	Not recommended
Fellatio without ejaculation	Not recommended	Not recommended	Not recommended	Not recommended
Splash of semen into eye	Not recommended	Not recommended	Not recommended	Not recommended

Cunnilingus	Not recommended	Not recommended	Not recommended	Not recommended
Sharing of injecting equipment	Recommended	Not recommended	Consider	Not recommended
Human bite	Not recommended	Not recommended	Not recommended	Not recommended
Needlestick from a discarded needle in the community	N/A	N/A	Not recommended	Not recommended

Table 1: Situations in which post-exposure prophylaxis (PEP) is considered (from Fisher et al., 2015)

In 2006, the Chief Medical Officer for England, Sir Liam Donaldson requested that local National Health Service agencies ensured that PEP was made available following sexual exposure to HIV. This enabled people to request PEP at National Health Service sexual health clinics and accident and emergency departments following a possible HIV exposure, subject to medical approval. It has been acknowledged that not all health practitioners are fully aware of PEP (Benn et al., 2011) and that, as a result of this and other factors, some people are not consistently offered the drug although they may benefit from it (Spence, 2003).

Although PEP represents a promising development in HIV prevention, it is not guaranteed to inhibit HIV infection. The effectiveness of the prevention tool in part depends on the following factors:

- *The length of time between the exposure and start of treatment* PEP is more likely to be successful if it is started as soon as possible after exposure, preferably within four hours. PEP is not usually prescribed after 72 hours as it is unlikely to be effective after this point (Roland et al. 2005).
- *Adherence to the medication* PEP must be taken consistently for a period of 28 days. A systematic review of 97 studies suggested that only 56.6% of individuals eligible for PEP (reporting a range of types of exposure) completed the entire 28-day course of treatment (Ford et al., 2014). This can be attributed to the severity of side effects, a subjective re-appraisal of their risk, the stigma of HIV, and other factors.
- *Drug resistance* The source of the HIV exposure may have a strain of HIV which is resistant to the drugs used as part of PEP. This can render PEP ineffective in an individual exposed to the resistant strain of HIV (Beltrami et al., 2002).

In view of the scientific uncertainty underpinning PEP and the moral and ethical aspects of its use, there have been debates about PEP particularly in the context of sexual exposure to HIV. Moreover, in the absence of randomised control trials, it is difficult to demonstrate the effectiveness of this prevention tool. An encouraging

case-controlled study has demonstrated the protective functions of PEP (Cardo et al., 1997). Given this uncertainty, it has been claimed that PEP can offer false hope to individuals who have been exposed to HIV. Moreover, the potential lack of effectiveness is often discussed in the context of the cost to the National Health Service (approximately £677.50 per course) (Benn et al., 2011; Richens et al., 2005) and of the, sometimes, severe side effects associated with its use, which can include diarrhea, nausea, headache, and fatigue (Benn et al., 2011).

Critics have also voiced concerns that PEP may induce a sense of invincibility and, thus, encourage sexual risk-taking and increase the incidence of HIV and other STIs (see Richens et al., 2005). This connects with the emerging social representation in the era of antiretroviral therapy that HIV is no longer a serious illness which has in turn been linked to condom fatigue among MSM, a group disproportionately affected by HIV (Kalichman, 1998; Shernoff, 2006). However, empirical studies have generally found little evidence for the claim that PEP increases sexual risk-taking and most users of PEP do not repeatedly request it (Donnell et al., 2010; Martin et al., 2004).

There has been some social sciences research into attitudes towards PEP among individuals at high risk of HIV acquisition. In an Australian interview study with users of PEP, Körner et al. (2003) found that PEP could have an empowering effect for users and enable them to re-gain a sense of control over their sexual health. In a qualitative interview study with 15 MSM who were using PEP following sexual exposure (Sayer et al., 2009), it was found that, while participants had high awareness of PEP, they lacked in-depth understanding of it. Moreover, participants in this study stated that their experience of taking PEP had changed their sexual behaviour and that they had less anal sex with casual partners (see also Körner et al., 2003). Although there is some awareness of PEP among MSM due to coverage in the gay press and its visibility in gay venues (de Silva et al., 2006), *understanding* of PEP (particularly of the conditions in which it is likely to be successful) remains low. This can inhibit access to the potential benefits of PEP. It is, consequently, important to examine the dynamics of social representations of PEP in channels of societal communication, such as the print media.

Social representations of risk in the media

The media constitute a key source of societal information regarding scientific, technological and medical developments, like PEP (Entman, 1989). When faced with a novel medical issue, the media tend to rely on metaphors and commonplace images in order to conceptualise it and communicate about it. In order to understand this process, we draw upon Social Representations Theory (Moscovici, 1988), which focuses on collective elaborations of knowledge and how cultural meaning systems evolve. A social representation consists of a network of ideas, values and practices in relation to a given social object.

Social representations enable individuals to understand the novel and unknown through two principal social psychological mechanisms - *anchoring* and *objectification*. Anchoring refers to the process of making something unfamiliar understandable by linking it to something familiar. Objectification is the process whereby unfamiliar and abstract objects are transformed into concrete and

‘objective’ common-sense realities – most notably through the use of metaphor (Lakoff and Johnson, 1980).

As a relatively new and poorly understood HIV prevention technology, PEP has to be anchored to, and objectified in terms of, existing constructs in scientific, popular media and industry discourses. In this article we investigate these processes across two decades of media coverage in order to observe the established and emerging social representations of risk and the ways in which such representations shape the allocation of benefits, hope and fear, blame and responsibility.

Popular print media play a pivotal role in contributing to social representations. Social Representations Theory provides a way of identifying the *social* dimension of sense-making by focusing on how language evokes broader social themes. It also facilitates the study of the attribution of blame and stigma to particular social groups in the context of infectious diseases and the potential impact of these attributions on identity and behavior. This article therefore contributes to the long tradition of work focusing on infectious diseases from a social representations and media perspective, from Susan Sontag’s (1978, 1989) work on AIDS, its metaphors and social stigma to more recent work on infectious disease and society (Wallis & Nerlich, 2005; Washer, 2010).

The media also play an important role in the transmission of knowledge concerning risk issues. In addition to communicating ‘expert’ risk assessments, the media also create spaces in which counter-definitions and counter-arguments can emerge (Allan et al., 2000). As demonstrated in a media analysis of obesity in Australia (Holland et al., 2011), the linguistic framing devices used by scientists (and reproduced by journalists) may serve to divert attention from their intended message, thereby generating new meanings and understandings of risk (Riesch & Spiegelhalter, 2011). On the other hand, there is often a lack of critical reporting in relation to risk, which can lead to monolithic understandings of risk phenomena. Researchers using social representations theory aims to capture the complexity and contradictory nature of communication around issues, such as risk. Moreover, the theory can shed light on the ‘moral connotations’ often appended to social representations of risk, which serve to delineate actions that are ‘acceptable’ from those that are not (Gerber et al., 2011).

In this article, we draw on data from a qualitative thematic analysis of the coverage of PEP in the print media between 1997 and 2015 to examine the emerging social representations of PEP during this period. We scrutinise the contexts in which they appear and the functions that they may perform in debate and public understanding. More specifically, we examine whether PEP is depicted positively or negatively, how it is anchored and objectified (for example, which metaphors are used), and the policy responses that are concurrently legitimised.

Method

In this article we draw on data from a thematic analysis of a small corpus of traditional press articles on PEP. It has been observed in numerous commentaries that people generally derive knowledge concerning science and health issues through engagement with news reports, rather than through sources such as medical professionals or education (see for example Griffin et al., 1998). As the media constitute ‘a very important factor in the transmission of knowledge about

risk issues' (Riesch & Spiegelhalter, 2011, p. 47), it is important to analyse the content and structure of social representations that are developed in media reporting on these issues. Social representations constitute a 'framework' for understanding and discussing complex and esoteric developments (as in the physical and medical sciences), such as PEP. We have therefore conducted a thematic analysis of media content, which is a method that is compatible with social representations theory (see Jaspal & Nerlich, 2014a, 2014b).

The Corpus

Using the keywords 'post-exposure prophylaxis' and 'HIV' on the Nexis® news database, we conducted a preliminary search of the UK national and regional newspapers up to 22th June 2015 (when we started work on this article). This yielded 72 articles that appeared in UK newspapers. These items were then pre-screened to ensure that they were relevant. The pre-screening process confirmed that 61 items were relevant and, thus, they were included in our analysis. The first article to mention PEP was published in *The Independent* on 2nd March 1997 and the latest in our corpus appeared in *The Independent* on 3rd June 2015.

In Figure 1 (below) we provide an overview of the newspaper outlets in which the articles appeared. The outlets included reflected a wide range of geographical areas and political perspectives, with, interestingly, *The Independent* taking the lead in this debate. We decided to include all UK newspaper articles in order to gain a broader overview of the socio-cultural landscape of discussions concerning PEP. By including articles published in both national and regional outlets since 1997, we were able to examine the broader social, cultural and rhetorical aspects of the debate on PEP and gain clearer insight into the dynamics of this debate.

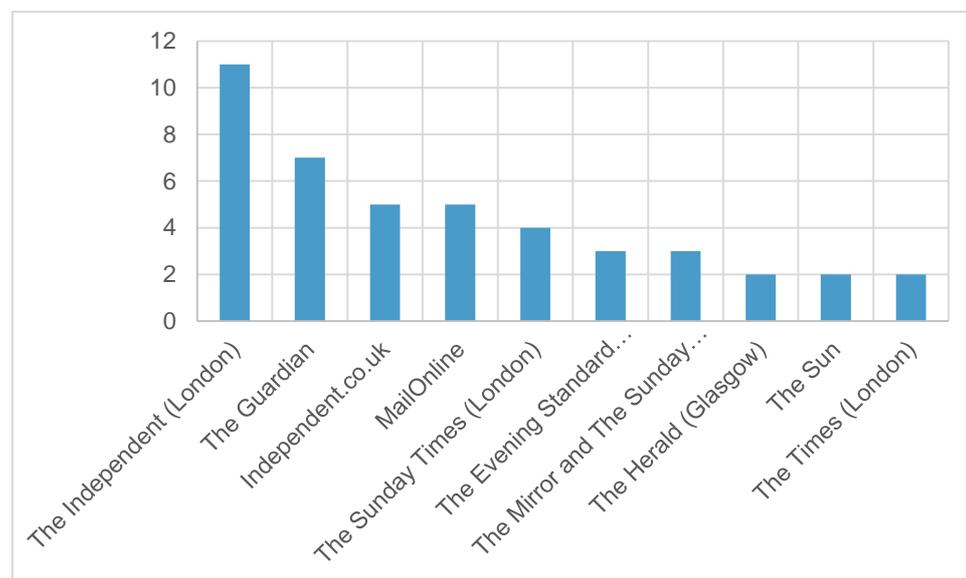


Figure 1: Overview of articles included in analysis by publication name (excluding publications with 1 article only)

Analytical procedure

We analysed the data using qualitative thematic analysis, which has been described as 'a method for identifying, analyzing and reporting patterns (themes) within data' (Braun & Clarke, 2006, p. 78). Themes are described as 'patterns of explicit and

implicit content' in qualitative data (Joffe, 2012, p. 209). Thematic analysis allowed us to identify emerging social representations of PEP as a socio-medical issue, and the dominant rhetorical strategies used to construct them. Indeed, this article stands in a growing tradition of social representations studies of the media using qualitative thematic analysis (see Jaspal & Nerlich, 2014a, 2014b, 2016; Washer & Joffe, 2006). This variant of thematic analysis was deemed most appropriate because of its theoretical and methodological flexibility. Here it is used to theorise language 'as constitutive of meaning and meaning as social' (Braun & Clarke, 2006).

We read and re-read the corpus of articles to familiarise ourselves with the broader themes that we subsequently discussed analytically. The left margin of each article was used to note initial observations that captured essential qualities, units of meaning and rhetorical techniques. We discussed our respective initial codes, which included *inter alia* general tone, particular forms of language, comparisons, categorisations and emerging patterns in the data, as well as any potentially idiosyncratic interpretations of the data until consensus was reached. Our analysis was entirely qualitative and eschewed quantification of codes – to that extent, the analysis aspired to 'reflect a balanced view of the data, and its meaning within a particular context of thoughts, rather than attaching too much importance of the frequency of codes abstracted from their context' (Joffe, 2006, p. 219). These initial codes were collated into preliminary themes, and arranged into a coherent structure. This process resulted in the identification of three major themes, two relating to the use of PEP in the gay population and one relating to its use by public health workers.

In addition to describing superordinate themes in the corpus, we identified linguistic elements, especially metaphors, 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).

Thus, we decided to employ a flexible form of thematic analysis able to capture competing concepts and images and the lack of uniformity in the context of PEP (see also Rose et al., 1995). In the analysis below, we provide extracts from the articles that exemplify the superordinate themes.

Findings

In this section, we describe two major social representations of the use of PEP for HIV prevention: a positive social representation of PEP as a relatively straightforward solution, where PEP is metaphorically framed as the 'morning-after pill', and a more negative social representation of PEP as posing risks and yielding uncertain outcomes. We also discuss a third social representation which we found for the use of PEP amongst public health care workers, where PEP is represented as needed and deserved.

PEP as an 'easy' solution

In a number of newspaper articles, post-exposure prophylaxis (PEP) was represented as a 'morning-after pill' for HIV, which served to emphasise the role of PEP in averting *sexual* exposure to HIV in particular. For instance, one headline read 'Secret of the morning-after pill that gives protection against HIV' (*The Times*, 21/04/2005), while another referred to a gay couple's 'fight for the right to "morning after" HIV drug' (*The Guardian*, 19/12/2005). Accordingly, the metaphor of the 'morning-after pill' anchored PEP in cultural and stereotypical knowledge associated with a form of contraception used after, rather than before or during, sexual intercourse and which interferes with pregnancy by inhibiting ovulation or by blocking implantation of a fertilised egg in the human uterus (Marions et al., 2002). The use of this metaphor served to shift the focus from the other routes of HIV acquisition, such as the sharing of needles in intravenous drug use, and indeed from occupational exposure to HIV in healthcare settings, for which PEP was originally developed (Henderson & Gerberding, 1989). Moreover, the 'morning-after' metaphor served to normalise HIV exposure by contributing to the social representation of a 'straightforward solution', thereby implicitly constructing users of PEP as blasé about sexual risk-taking. The phrase 'morning-after pill' is itself a metaphor for the emergency contraceptive pill which normalises its function and side effects and frames it as an easy solution, while in effect both the real 'morning-after pill' and the metaphorical 'morning-after pill' (that is, PEP) both are far from 'easy', physically and emotionally (<http://stayingalivefoundation.org/blog/2014/07the-morning-after-pill-sorting-fact-from-fiction/>).

The anchoring of PEP to the 'morning-after pill' implicitly constructs the functionality of the two biomedical interventions as being the same, despite the fact that they actually function in very different ways. While emergency contraception functions by preventing or delaying ovulation (Marions et al., 2002), PEP attempts to inhibit viral replication once HIV has entered the body (CDC, 2001). Yet, anchoring in this manner served to conflate the mechanisms of the morning-after pill, which prevents a pregnancy from occurring, with those of PEP intended to avert HIV infection after a potential exposure to the virus. None of the articles discussed the pharmacological processes or mechanisms of PEP, thereby depicting PEP as a single pill regimen taken *once* after a potential exposure to HIV. This contributed to the emerging representation of PEP as an easy solution.

The anchoring of PEP to the morning-after pill further foregrounded the extremely high effectiveness of the latter to the former, while attenuating the morning-after pill's emotional and physical side effects. This in turn rendered the notion that 'doctors withhold morning after HIV treatment' (*Sunday Times*, 27/03/2005), unethical and unfathomable. More specifically, given the social representation of the morning-after pill as a highly effective and relatively harmless prevention tool for pregnancy (see Grossman et al., 2011), PEP was made to appear a similarly effective and harmless prevention tool which should be made available to those at risk of contracting HIV. This problematised the logic of the 'secret of the morning-after pill that gives protection against HIV' (*Sunday Times*, 27/03/2005) and justified one gay couple's 'fight for [the] right to [the] morning after HIV drug' (*The Guardian*, 19/12/2005). However, by anchoring PEP to the morning-after pill, press reporting of PEP attenuated the length of the course of medication (28 days) and the

very challenging physical side effects often associated with this long course of medication and, conversely, accentuated the effectiveness of PEP which is by no means guaranteed to unequivocally halt HIV infection.

In the articles that described PEP in terms of a 'morning-after pill', the prevention tool was represented as being intended specifically for gay and bisexual men at risk of HIV infection through unprotected sexual intercourse. For instance, the headline of one article (*The Independent*, 02/03/1997) claimed that 'morning after drugs cut HIV risk by 80%' while in the main body of the same article PEP was referred to as:

a morning after treatment being quietly administered to *gay men* [that] may prevent them becoming HIV positive" (*The Independent*, 02/03/1997 emphasis added).

In these extracts there was an emphasis on the effectiveness of PEP among gay and bisexual men, thereby anchoring the prevention tool to this group and concealing its wider public health benefits. There was, for instance, no acknowledgement in the press coverage of the potential role of PEP in blocking HIV infection after heterosexual intercourse. The framing of PEP as particularly effective for gay and bisexual men served implicitly to construct HIV as a 'gay' virus echoing the dominant representation in the early stages of the HIV/AIDS epidemic (Washer, 2010). A similar representation is observable in debates concerning pre-exposure prophylaxis for HIV (Jaspal & Nerlich, 2016).

Thus, in the process of depicting PEP as a morning-after pill with high effectiveness and minimal side effects, several articles misrepresented HIV. Although HIV is a serious chronic condition, in developed countries it is no longer considered a life-limiting but rather a life-altering condition in an era of antiretroviral therapy (Poindexter & Keigher, 2004). In positive press reporting of PEP, HIV was commonly constructed as posing a dire threat to human life through its characterisation as a 'life-threatening disease' (*Morning Star*, 02/06/2006), while PEP was depicted as the panacea, that is, a 'life-saving treatment' (*The Guardian*, 23/02/2006). It appeared that, in the process of highlighting and emphasising the effectiveness of PEP, some articles represented HIV as posing a mortal threat to the individual, further stigmatising this chronic condition. Indeed, social stigma can have profoundly negative physical, social and psychological effects for people living with HIV (Rao et al., 2011). This juxtaposition of HIV as a dire problem and PEP as an easy solution, can be seen in an article published in *The Times* (21/04/2005) that claimed that PEP 'could act as a morning after pill to a deadly disease' (*The Times*, 21/04/2005).

The use of war metaphors served to accentuate the positive role of PEP in HIV prevention. More specifically, an article in *The Sun* (02/12/2012) claimed that PEP 'can stop HIV from taking hold in the body' and that it 'works by *attacking* the virus', emphasising the power of PEP in actively curtailing HIV. The metaphors of 'stopping' and 'attacking' HIV accentuated the role of PEP as an active agent in 'fighting' HIV. In previous research into representations of infectious disease, such as Foot and Mouth Disease (Nerlich et al., 2002), researchers found that war metaphors dominated discourse and policy, sidelining policies such as vaccination. War metaphors can accentuate the unequivocal power of a medical intervention. Similarly, the 'morning-after' metaphor attenuated the potential side effects of PEP and the effort required

by the individual taking the medication, which in turn encouraged the social representation that PEP constituted an easy solution – almost a ‘silver bullet’. However, this positive social representation was challenged by a competing social representation of PEP as an uncertain and risky choice.

PEP as an uncertain and risky choice

While in some articles PEP was constructed as a highly effective and reliable ‘morning-after’ pill, which served to emphasise the benefits of the prevention tool and to attenuate any potential shortcomings associated with it, in others there was a clear focus on the related themes of uncertainty and risk in relation to PEP. In contrast to the positive social representation of PEP, several articles acknowledged that PEP ‘is not guaranteed to work’ (*Daily Mail*, 29/09/2013), thereby introducing a social representation of uncertainty.

Furthermore, in contrast to the social representation of effectiveness through the anchoring of PEP to the ‘morning-after’ pill, some of the articles quoted prominent individuals and organisations in order to introduce the social representation of uncertainty in the specific context of sexual relations, a context of transmission that was emphasised in positive coverage. For instance, one article published in the *Sunday Times* stated that the Department of Health’s medical advisers:

cannot recommend in favour of, or against its use [that, is PEP due to] a lack of research on efficacy in cases where it is transmitted sexually (*Sunday Times*, 27/03/2005).

By citing the paucity of research in this area, these news reports introduced the social representation of uncertainty regarding PEP. Despite scientific uncertainty, it can be argued that it is worthwhile to use PEP to attempt to avert HIV infection. However, several news reports elaborated the social representation of uncertainty by emphasising the 28-day commitment to PEP, rather than just the ‘morning after’, as well as the potentially debilitating side effects of the drugs used.

Indeed, these articles included quotes from prominent individuals and agencies that highlighting the potential risks to human health and possible lack of effectiveness of PEP. For example an article in *The Independent* included a statement from Dr David Hawkins of Chelsea and Westminster Hospital embedded in the following extract for the paper:

it isn’t a simple decision [whether or not to prescribe PEP].... [As Dr David Hawkins said] ‘these drugs are highly toxic. They have unpleasant side effects. They don’t actually guarantee complete protection’ (*The Independent*, 02/03/1997).

Effectively this article was contesting the view that if doctors withheld the drug then they were making an unethical and unfathomable decision, highlighting Hawkins’ expert view that the decision to prescribe the drug was problematic, given the uncertainties and complex human health factors involved. Use of the term ‘toxic’ in the Hawkins’ quote served to anchor the representation to poison and, thus, to

emphasise the harmful effects of PEP for human health. Effectively PEP was being framed as a 'gamble' for patients who had to consider whether to subject themselves to potential physical harm in the absence of any guaranteed success.

While articles in favour of PEP called for greater public awareness of PEP, some articles conversely justified its invisibility in the public domain and advised caution in promoting it. For instance, one article in *Daily Mirror* highlighted the risk representation of PEP, noting that it:

isn't prescribed lightly as it needs to be taken for a month and can have severe side effects, including sickness and diarrhoea (*Daily Mirror*, 26/11/2008).

Similarly, another article in *The Guardian* (19/12/2005) emphasised the representation of uncertainty. It justified doctors' reluctance to prescribe PEP by noting that '[t]he Department of Health cites fears about toxicity and side-effects', as well as the 'scarcity of studies showing they work in sexual exposure cases'.

In highlighting the side effects of using PEP, some news reports also quoted individuals who themselves had been through a course of PEP. This served to add a subjective, experiential dimension to the 'objective' accounts of PEP provided by health 'experts', creating a matrix of subjective experience and objective 'facts' (Mairal, 2011). First-hand accounts from patients served to enhance the credibility of the risk representation. For instance, in an article in *The Herald*, a patient was quoted as saying:

I wasn't prepared for just how powerful the drugs would be. The day after starting the treatment the diarrhoea began, and really didn't stop for the next four weeks (*The Herald*, 17/09/2005).

Such a quote serves to undermine the social representation of PEP as an easy solution or quick fix by highlighting the patient's lack of preparedness, which itself might be attributed to the growing representation of PEP as an easy solution. The patient 'testimony' emphasises the problems associated with the course of treatment: the rapid onset of side effects, 'the day after', the duration of the side effects, that 'didn't stop for the next four weeks' and the severity of the side effects, 'diarrhoea'.

A similar article in *The Comet* also included patient testimony that developed the risk representation by elaborating the potential side effects. The article included the following discussion:

[the patient had] suffered from sickness and diarrhoea, fatigue and headaches [who] also became paranoid through fear that he might infect anyone else (*The Comet*, 20/03/2014).

This article highlighted the harmful effects of taking PEP not just in terms of the physical side effects but also in terms of the psychological effects, namely that of paranoia. Given the physical and psychological side effects, an article in *The Herald* (17/09/2005) counseled caution, citing an individual who had taken a course of PEP,

that 'a course of PEP should not be taken lightly' (*The Herald*, 17/09/2005). Thus, in these articles patients' voices were used to reinforce the 'objective' expert discourse of caution.

Amid the uncertainty and risks attributed to PEP in the print media, the risk representation was further enhanced by the representation of PEP as a potential threat to the norms of safer sex practices through its encouragement of sexual risk-taking in groups already at risk of HIV acquisition. While we have noted the ways in which articles representing the potential dangers associated with PEP tended to focus on representing risks to individual health through harmful side effects, the articles that focused on collective dangers emphasised the threat to *public* health. These articles noted the 'concerns that knowledge of their availability [of PEP] might encourage risky behaviour' (*The Guardian*, 19/12/2005) and explained that doctors':

reluctance to promote PEP is partly due to a fear people will consider it a 'morning after' pill which could encourage unprotected sex (*The Herald*, 17/09/2005).

These articles played on the anxiety that the ready availability of PEP might undermine the development of the safer sex culture that was evident amongst groups at high risk of HIV infection such as men who have sex with men. For example, an article in the *Daily Mail* noted that 'sexual health experts warned that easier access to the therapy [PEP] could lead to a rise in unsafe sex' (*Daily Mail*, 22/02/2006). Furthermore an article in *The Independent* quoted a doctor in a London hospital who warned that:

making the drugs [PEP] widely available as a 'morning after' treatment could have serious implications [and that] anything that goes against safer sex behaviour would cause more infection in the gay population than this treatment would help (*The Independent*, 02/03/1997).

Such articles tend to disregard the evidence that PEP does not adversely affect the norm of safer sex among men who have sex with men (see for example Donnell et al., 2010). In *The Independent*, the quote from the doctor (an 'expert' voice) is used to provide credibility to the risk representation, based on the stereotyping of gay men as sexual risk-takers. This stereotyping underpins the representation of PEP as a drug that increases rather than reduces this group's exposure to HIV infection. The risk representation underpins an implied policy response; that is, to limit knowledge of PEP to inhibit any increase in sexual risk-taking. Thus, this representation of PEP as a collective danger tends to undermine it as a way of enhancing the health and wellbeing of gay/bisexual men. However, as demonstrated in the next section, this does not prevent the same newspapers from representing HIV as a 'life-saver' for healthcare professionals who have accidentally been exposed to HIV infection.

PEP as needed and deserved among healthcare professionals

In most of the media coverage, there was unanimous endorsement of the limited use of PEP for *specific* at-risk groups. Following the early coverage of PEP as a response to the dangers of health workers being exposed to HIV in healthcare

settings, there was in the articles we examined a continuing a focus on the benefits of PEP for healthcare professionals. For example an article in the *The Independent* highlighted the role of PEP as a means of rectifying 'accidents', in which health workers were 'innocent victims' exposed to HIV infection noting that PEP had been:

developed for health workers who accidentally prick themselves with syringes of contaminated blood (*The Independent*, 02/03/1997).

An article in the *Morning Star* reported the results of a survey sent to 350 junior doctors at Guy's and St Thomas's hospitals in 1998 observing that:

three out of four junior doctors risk potential HIV infection during the course of their careers [but that] two-thirds were unaware that they could be treated immediately afterwards to minimise the risk of the fatal infection (*Morning Star*, 22/11/ 2001).

Again the evidence that health workers risk of HIV infection due to an accident at work is very low (Bell, 1997) was disregarded. Instead the *Morning Star* article highlighted the large proportion of doctors who had a [small] risk of HIV infection. Furthermore, the article invoked the worst outcome of infection, death, and reflected on the ignorance of those at risk.

Similarly, in an article in the *Daily Post*, also emphasised the danger of occupational accidents failing to note that most accidents did not lead to infection. It also drew upon emotive metaphors such as being 'stabbed' by dirty needles causing 'enormous distress'. The article state that:

there are 100,000 needlestick accidents in Britain every year, causing enormous distress to health workers and leading to potentially life-threatening diseases such as hepatitis and HIV... urgent care [is] vital for victims stabbed by dirty needles (*Daily Post*, 19/03/2004).

In these articles PEP was framed as a benevolent response to the threats to the psychological and physical wellbeing of health professionals affected by potential occupational exposure to HIV.

In the articles that discussed PEP and health workers, the health workers were categorised as innocent victims. The victimhood of health workers was emphasised in media coverage of PEP, which in turn presented an implicit moral argument that they (including the junior doctors at risk of occupational exposure) had the right to be informed about its existence and that they should be offered the prevention tool following a potential occupational exposure. Health workers were constructed as innocent victims in need of help, in contrast to those who allegedly *put themselves at risk* of HIV infection, such as gay and bisexual men. Thus, there was a competing representation of eligibility – those at risk of occupational exposure were represented as more deserving and as having a greater entitlement than those who took sexual risks.

Conversely, there were some articles that highlighted the inaction of the Department of Health in relation to PEP. An article in the Guardian lamented that:

despite the fact that the government appears to have accepted the efficacy of PEP in cases of sexual transmission, a spokeswoman for the DoH would not tell the Guardian why its general availability was not being publicised (*The Guardian*, 23/02/ 2006).

Similarly an article in the *Sunday Time* suggested that doctors had withheld the 'morning after' HIV treatment and that the prescription of PEP 'could have prevented hundreds of people from becoming HIV positive' (*Sunday Times*, 27/03/2005). An article in *The Times* referred to PEP as the 'morning after pill that gives protection against HIV' but also suggested it was a 'secret' (*The Times*, 21/04/ 2005). Similarly an article in *The Herald* stated that 'unless a patient specifically asks about PEP, they will not be told about its existence by doctors' (*The Herald*, 17/09/ 2005).

These articles were based on a narrative in which healthcare providers acknowledged the 'efficacy' of PEP and the 'protection' it offered but the narrative also accused the Department of Health and doctors of 'secrecy'. It used the verb 'withhold' implying that there was a deliberate decision *not* to prevent 'hundreds of people from becoming HIV positive'. These articles collectively referred to a conspiracy to limit the prescription of PEP and there was, thus, a constructed need for patients themselves to be proactive in securing access to PEP in view of this 'conspiracy'.

In some articles there was also a sense that PEP should be used as a response to non-sexual transmission rather than sexual transmission of HIV. For instance, an article in *The Times* stressed that that PEP 'is routinely available to health workers who are *accidentally* exposed to HIV' (*The Times*, 27/10/2005, emphasis added). The use of the term 'accidentally' implies that the health worker was not to blame. In contrast sexual transmission was often linked to human agency and therefore blame as in the following *Daily Mail* article that referred to 'dangerous liaisons' and noted there should be a 'health warning over dangerous liaisons abroad' (*Daily Mail*, 23/07/2004). This *Daily Mail* article highlighted the irresponsible actions of young holidaymakers claiming that:

doctors are warning of the dangers of casual sex after it emerged that half of all young people on holiday this summer will sleep with a stranger (*Daily Mail*, 23/07/2004).

This article stressed the serious consequences of 'casual sex' in terms of 'serious infections such as syphilis, gonorrhoea, chlamydia and HIV' (*Daily Mail*, 23/07/2004).

In contrast articles on 'innocent victims' tend to stress their generally responsible behaviour and their unlucky exposure to the virus. For example an article in *The Times* noted that:

there are many people who are leading responsible lifestyles but, if they have an *accident*, we must protect them rather than expose them to a lifetime with HIV (*The Times*, 21/04/ 2005).

Similarly an article in *The Guardian* discussed the case of an activist campaigning for greater awareness of PEP in similar terms:

Robert was always *careful*. He had contracted HIV in 2000 after an accident with a condom, and made sure that anyone he slept with was aware of his status (*The Guardian*, 23/02/ 2006, emphasis added).

The narrative in articles about individuals who had been exposed to HIV because of an 'accident' was that they should be entitled to treatment because they had been 'responsible' and 'careful'. Thus in the articles on PEP there are two contrasting narratives:

- A *negative representation* of PEP that constructs infection as the product of (irresponsible, unprotected) sex by (irresponsible individuals, gay men or teenage holiday makers) and that frames PEP treatment as uncertain, risky and potentially harmful as it may encourage further (sexual) irresponsibility.
- A positive representation of PEP that constructs infection as the consequence of accidental exposure of an innocent (health worker) victim and PEP as a sensible precautionary measure.

Discussion

We found three major social representations of PEP in our small corpus of press articles, two focusing on the sexual transmission of HIV among gay and bisexual men, and another on occupational exposure to HIV among public health workers. The first two representations are quite polarised, with one framing PEP as a relatively easy solution to the risk of HIV, while the other frames PEP as a risky and uncertain choice. The third social representation highlighted the need for PEP among health care workers accidentally exposed to HIV.

The positive social representation of PEP as an easy solution focused on anecdotal journalistic statements. There were only few invocations of either 'expert' scientific evidence or layperson experiences of using PEP. Thus, the representation was not linked to scientific certainty or to personal experience. Conversely, the more negative social representation of PEP as uncertain and risky did draw extensively on both expert scientific evidence *and* layperson experiences of using PEP. Crucially, the expert scientific evidence highlighted a lack of certainty in relation to PEP, while the testimonies of former PEP users provided an experiential dimension to the HIV prevention tool and emphasised the difficult physical and psychological consequences of using it despite no guarantees of its effectiveness. Although the norm of balanced reporting has been observed in media reporting on science (Boykoff & Boykoff, 2004), in the context of PEP there is evidence of polarised reporting with no 'prevalent' or dominant social representation of the prevention tool. However, the negative representation may appear more 'credible' than the positive one due to the provision of both expert and layperson voices. Accordingly, it

is possible to talk of a hegemonic negative representation of PEP - that is, one that is uniform and coercive – and a less developed positive representation of PEP (see Moscovici, 1988). A clear representation that cut across media reporting was that of healthcare professionals as more deserving of PEP than gay/bisexual men.

The positive social representation of PEP focused exclusively on the benefits of this prevention tool and tended not to engage with its potential shortcomings. This representation constructed PEP as an easy solution to HIV exposure and the war metaphors used to support the representation highlighted its unequivocal power as a highly effective bio-medical intervention for averting HIV infection (see also Lupton, 2012). In a similar vein, the print media anchored PEP to the contraceptive morning-after pill, emphasising the sexual transmission route of HIV. In the context of sexual transmission, there was a particular focus on the feasibility of PEP for use among gay and bisexual men, rather than among other groups and individuals at risk of HIV infection. Thus, although the positive representation called for the use of PEP for sexual transmission, the exclusive focus on gay and bisexual men concealed its potential benefits for other social groups. This implicitly echoed the long-standing social representation of HIV as a 'gay virus' (Washer, 2010).

The anchoring of PEP to the morning-after pill served to generalise the effectiveness, simplicity of dosage and insignificant side effects of the contraceptive pill to PEP. Anchoring to the morning-after pill trivialised the risks of sexual exposure to HIV and of using PEP to prevent it. Given its focus on the benefits of PEP, the positive social representation of PEP as an easy solution reduced the significance of potential side effects, socially and psychologically. However, there were no subjective accounts from former PEP users that could add a *positive* experiential dimension to the use of PEP.

Surprisingly, we found no description of the functional mechanisms of PEP, that is, the inhibition of viral replication once HIV has already entered the body. For instance, there was no explanation of the notion that after entry it may take hours for HIV to advance beyond the mucosa and enter the bloodstream, which would illustrate the need for it to be taken within 72 hours of exposure (Benn et al., 2011). The anchoring of PEP to the morning-after pill may erroneously encourage the perception that the two drugs function in similar ways. Paradoxically, although the risk of transmission during sex was normalised through association with the morning-after pill, media coverage of PEP in fact emphasised the negative aspects of living with the HIV as a means of demonstrating the importance of advocating PEP. While the aim was to construct the social representation of PEP as a simple solution, the highlighting of negativity in relation to HIV could lead to fear and disengagement, rather than action in protecting sexual health. This prediction is echoed in other science and technology contexts, such as climate change communication (see Nerlich & Jaspal, 2012). More generally, the lack of technical information about PEP may inhibit informed decision-making about PEP and, thus, undermine HIV prevention efforts.

There was a competing social representation of PEP as risky and uncertain, which served to undermine support for it. In science and technology studies, it has been argued that people greatly favour scientific certainty which is central to public trust in emerging science and technology (Jacob & Hellström, 2000). Yet, the effectiveness of PEP was constructed as uncertain in the absence of clinical trials on

the prevention tool. The articles reviewed for this study also highlighted the potential risks of PEP to human health, focusing specifically on the uncertain and potentially severe side effects associated its use. Unlike the positive social representation of PEP, this one was supported by both expert scientific sources (for example from the Department of Health, HIV consultants and sexual health 'experts') and layperson accounts of using PEP after possible sexual exposure to HIV, both of which depicted PEP as uncertain and risky. Those articles which focused exclusively on the negative side effects of PEP, its risks and the uncertainty of its effectiveness could conversely discourage people from seeking PEP when it could in fact be of benefit to them (Benn et al., 2011). The decision to take PEP must be based on a consideration of the potential advantages and disadvantages.

The negative social representation of PEP dealt with PEP in public health settings and appeared to favour very limited use of PEP among this specific group, while the positive representation advocated a more general use of the prevention tool, particularly among those at risk of sexual exposure to HIV. The press coverage of PEP exhibited a moralising tendency to construct the 'responsible' and 'careful' (for example health workers) as deserving of PEP and the implicitly 'irresponsible' and 'careless' (for example gay men who had unprotected sex) as undeserving of it. This is consistent with the notion that social representations of risk tend to carry moral connotations (Gerber et al., 2011). A discourse of individualised responsibility served to delineate *self-inflicted* and *imposed* risk of HIV infection, which has been argued to be counterproductive in HIV prevention efforts (Dodd, 2002). Accordingly, there was an amplification of HIV risk to health workers for whom PEP was constructed as a priority in many articles, while gay and bisexual men were implicitly represented as less deserving of the prevention drug due to alleged sexual risk-taking and, thus, individual responsibility. Echoing the social identity theory of intergroup relations from social psychology (Tajfel & Turner, 1979), this served to create intergroup boundaries between the 'deserving' and 'undeserving' and, in the specific press coverage, between health workers and gay and bisexual men. Indeed, much social sciences research into HIV has shown that people tend to hold negative, moralising stereotypes of HIV-positive individuals, due to the anchoring of HIV infection to sexual promiscuity and intravenous drug use (Deacon, Stephney & Prosalendis, 2005). Gay and bisexual men were positioned in this camp, while health workers were constructed as being at risk of HIV infection through no fault of their own.

PEP was represented as potentially encouraging sexual risk-taking among gay and bisexual men, who constituted the focus of much media coverage of PEP. This risk representation resonated with the long-standing depiction of the contraceptive pill as increasing unprotected sex among heterosexual individuals (Westley & Glasier, 2010). Given the coercive norm of safer sex, the representation of risk and uncertainty may serve to further stigmatise condomless sex, sometimes referred to as 'whore shaming' (see Spieldenner, 2016), thereby increasing the sense of personal responsibility and decreasing help-seeking in the aftermath of a potential sexual exposure to HIV. Furthermore, this representation stigmatises PEP itself as it implies that PEP is utilised in lieu of condoms, that is, at a cost to the National Health Service and, thus, to society. Collectively, these byproducts of the negative social representation may undermine attempts to reduce HIV incidence.

Conclusion

In this article we have shown that the UK press has discussed PEP in a polarised way over the last two decades. We found two competing social representations, namely that of PEP as a relatively easy solution, and that of PEP as risky and uncertain, which were accompanied by a third that highlighted issues around the use of PEP in public healthcare settings. Although the data presented in this article exhibit only one small facet of the story regarding social representations of PEP, we argue that this is an important facet – one that can perform an agenda-setting function and introduce representations that are later taken up in societal debates about HIV prevention, particularly in social media debates. However, future research could extend this research by exploring issues, such as journalist attitudes towards PEP, as well as reader responses to the articles on PEP. Given the diversity of representations and the lack of consensus in media reporting on PEP, there is scope for the emergence of uncertainty and misunderstanding in relation to the prevention tool (see Moscovici, 1988). These representations embody competing messages regarding PEP and its position in HIV prevention.

As Krinsky and Plough (1988) have argued, risk communication is a tangled web of signs, symbols and messages. The social representation of PEP as an easy solution reduces the alleged risks associated with its implementation as a preventive tool (for example, increased STI incidence, serious side effects of PEP), which are conversely highlighted by the social representation of PEP as uncertain and risky. Crucially, the negative representation is substantiated by both 'expert' and layperson sources, which may serve to lend it greater credibility than the positive representation. Moreover, the social representation of PEP as needed and deserved among healthcare professionals (as opposed to gay/ bisexual men) constructs a differential level of risk, highlighting it among gay/ bisexual men and minimising it in the group said to be eligible for PEP, namely healthcare professionals. As Kasperson et al. (2003) note, risk representations can have important perceptual and behavioural consequences – it is easy to see how these risk representations can further stigmatise gay/ bisexual men and their sexual behavior, with potentially negative outcomes for HIV prevention efforts.

These social representations have distinct implications for public perception and policy. While the representation as an easy solution may create expectations of quite straightforward access to PEP, its representation as uncertain and potentially harmful can create doubts about its use. While the 'easy solution' representation may create expectations that access should be given to all who need it, the representation of PEP as uncertain and that of PEP as appropriate only for the treatment of the 'innocent' victims of 'accidental' infection can create stigma by creating a distinction between deserving and undeserving users. Such categorisations may have implications for policy makers who have not only to negotiate financial concerns and assess health and financial risks and benefits, but also to address social representational risks and benefits. Moreover, the representations imply distinct action orientations and risk assessments among individuals at risk of HIV, that is, either to avoid PEP or to seek it following possible exposure to HIV.

Existing research shows that public awareness and understanding of PEP is generally low (de Silva, Miller & March, 2006; Samuel et al., 2008). In this context it is important that the print media tailor their output to adequately address this knowledge deficit by providing more accurate information about PEP. This might enable individuals to formulate accurate risk estimates about their sexual behaviour and, thus, to consider the position of PEP alongside other methods of HIV prevention, such as condom use. This would also inform personal decision-making about the use of PEP among individuals at risk of HIV infection and contribute to enhancing public health in an era of high HIV incidence, as well as enable policy makers to devise policies against a background of realistic expectations. Some progress in bridging that awareness gap is being made more recently in the domain of social media, on Twitter and Facebook, for example. The social representations that are currently emerging there ought to be examined in future research.

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