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HIV-infected Men Who Have Sex With Men Who Engage in Very High Levels of Transmission Risk Behaviours: Establishing a Context for Novel Prevention Interventions

S. Wade Taylor, PhD[a], **Conall O'Cleirigh, PhD**[a,b], **Kenneth H. Mayer, MD**[a,c], and **Steven A. Safren, PhD**[a,b]

[a]The Fenway Institute at Fenway Health, Boston, MA, USA

[b]Massachusetts General Hospital and Harvard Medical School, Boston, MA, USA

[c]Beth Israel Deaconess Medical Center and Harvard Medical School, Boston, MA, USA

Abstract

Men who have sex with men (MSM) comprise the largest risk group of individuals living with HIV in the United States and have the highest rates of new infections. A minority of HIV-infected MSM engage in unprotected anal intercourse after learning about their infection, potentially transmitting the virus to others. The current study sought to generate self-generated descriptive themes, from a group of HIV-infected MSM who reported high rates of sexual transmission risk behavior that may be relevant for understanding sexual risk in this group. Five descriptive themes emerged during content analysis: a) serostatus attribution, b) assumption of sexual partner's responsibility for safer-sex, c) sexual sensation seeking, d) ongoing substance use, and e) dissatisfaction with current relationships. Traditional HIV transmission risk-reduction interventions that have been known to have only modest effects should be augmented by developing HIV prevention strategies for this subgroup of MSM to address these salient themes.

Keywords

HIV-infection; MSM; gay and bisexual men; HIV prevention; risky sexual behavior

Introduction

Men who have sex with men (MSM) comprise the largest risk group of individuals living with HIV/AIDS in the United States (US). According to the Centers for Disease Control (CDC; 2012), between 2007 and 2010, male-to-male sexual contact (e.g., unprotected anal intercourse; UAI) resulted in 75% of all diagnosed infections in the US and MSM accounted for approximately 61% of all new HIV infections in 2009. Furthermore, MSM comprise more than half (51%) of all persons living with HIV and more than 296,000 MSM have died since the epidemic began (CDC, 2012).

Correspondence concerning this article should be addressed to S. Wade Taylor: The Fenway Institute, Fenway Health, Boston, MA, USA, 02215. Office: 617-927-6182 OR wtaylor@fenwayhealth.org.
S. Wade Taylor, PhD, is an Associate Research Scientist and faculty member at The Fenway Institute, Boston, Massachusetts, USA.
Conall M. O'Cleirigh, PhD, is a Research Scientist at The Fenway Institute and the Associate Director of Behavioral Medicine in the Department of Psychiatry at Massachusetts General Hospital.
Kenneth H. Mayer, MD, is the Medical Research Director of The Fenway Institute, the Director of HIV Prevention at Beth Israel Deaconess Hospital, Boston, MA, and a Professor of Medicine at Harvard Medical School.
Steven A. Safren, PhD, is a Research Scientist at The Fenway Institute, a Professor in Psychology at Harvard Medical School, and the Director of Behavioral Medicine in the Department of Psychiatry at Massachusetts General Hospital.

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The relationship between UAI, the major mode of HIV transmission in MSM, and co-occurring factors (such as depression and substance use) is well-established (Beyrer, Wirtz, Walker, Johns, Sifakis, & Baral, 2011; Rajasingham, Mimiaga, White, Pinkston, Baden, & Mitty, 2012; van Kesteren, Hospers, Kok, & van Empelen, 2005). Although many MSM usually reduce their sexual risk taking after becoming aware of their HIV positive serostatus (Marks, Crepaz, & Janssen, 2006), some MSM continue in HIV transmission risk behaviors (TRB) (Kalichman, 1999; Kalichman, Greenberg, & Abel, 1997; Marks, Crepaz, Senterfitt, & Janssen, 2005; Parsons, Halkitis, Wolitski, Gomez, & the Seropositive Urban Men's Study Team, 2003). To date, studies generally have not focused on MSM who participate at very high levels of sexual TRB.

In a prior study conducted at The Fenway Institute, Boston, MA (N=503), 10% of HIV-infected MSM accounted for approximately 75% of the TRB, each reporting at least nine episodes of UAI in the past three months with HIV-uninfected or serostatus unknown partners (Safren, O'Cleirigh, Skeer, Elsesser, & Mayer, 2012; Safren, O'Cleirigh, Skeer, Driskell, et al., 2011). This subset of HIV-infected MSM may have unique HIV prevention needs that have not been adequately addressed by traditional prevention programs, which have tended to produce only modest effects that diminish over time (Herbst, Beeker, Mathew, McNally, Passin, et al., 2007). Effecting even modest reductions in the rates of sexual risk behavior among this high-risk subgroup might avert a substantial number of new HIV infections.

The 2010 the National HIV/AIDS Strategy calls for the US to reduce the number of HIV infections by 25% by 2015 (Office of National AIDS Policy, 2010). To accomplish this, HIV prevention strategies must address high-risk groups where HIV is heavily concentrated, or in communities where HIV infection continues to increase. Therefore, our primary aim for the current study was to identify self-generated themes, from a group of HIV-infected MSM who reported the highest rates of sexual TRB, and to use these data to generate hypotheses that can be empirically verified to augment interventions for this group of MSM.

Methods

The researchers utilized a constructivist paradigm, which considers multiple realities as its ontological premise, an epistemology that is subjective and a methodology that is naturalistic (Denzin & Lincoln, 2005). This foundation set the stage to obtain narrative descriptions of TRB, and therefore we developed and employed a qualitative descriptive design (as described by Sandelowski, 2010; Sandelowski, 2000; Sullivan-Bolyai, Bova,& Harper, 2005). This contextual framework helped to provide formative data that might be used by other researchers who work with these groups.

Based upon earlier prevention work with a combined sample of more than 500 HIV infected MSM (Safren et al., 2012; Safren et al., 2011), those reporting the highest rates of sexual TRB (i.e., the highest decile of the sexual risk distribution) reported nine transmission risk episodes in the previous three months. This was used as the cut-off for the current study to identify characteristics of sexual risk in this distinct group. Participants were, therefore, invited to participate if they self-reported being an HIV-infected MSM who engaged in at least nine episodes of TRB in the past three months with HIV-uninfected and/or unknown serostatus partners. To recruit participants, flyers and palm cards with study information were posted at Fenway Health (FH: the study site) and other community health organizations in the Boston area. FH is a primary health care center that focuses on providing quality health care to lesbians, gay, bisexual and transgender individuals, with specialty care in serving those who are HIV-infected or at risk for HIV acquisition (Mayer,

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Appelbaum, Rogers, Lo, Bradford, & Boswell, 2006). A non-probability convenience-sampling method resulted in 15 interviewees.

Study procedures were approved by FH Institutional Review Board, which included a waiver of signed informed consent (using an oral explanation of the proposed research). Participants were compensated $50. A semi-structured interview guide was used consisting of primary questions that explored condom-use efficiency, perceived sexual risk, use of drugs and alcohol, casual sex and anonymous partners. Because this study investigated sensitive and private information, limited demographic information and sexual risk behaviors were collected. This was done so that interviewees might feel more comfortable sharing personal examples of TRB. Interviews lasted approximately 50 to 60 minutes and were conducted by a male, doctoral-level researcher/clinician with experience conducting qualitative research in MSM. The primary interviewer also received weekly clinical supervision from a doctoral level licensed clinical psychologist. One interview was not transcribed due to poor audio quality.

The analysis plan, which includes qualitative tenets and analytic steps (See Table 1), merged in-depth content analysis (Miles and Huberman, 1994) with within-case and across-case approaches to data review (Ayres, Kavanaugh, & Knafl, 2003). This plan was congruent with this study's qualitative descriptive approach, allowing us to analyze the qualitative data with low inference and minimal interpretation.

The plan to establish trustworthiness of the data consisted of meeting the criteria of credibility, transferability, dependability and confirmability outlined by Lincoln & Guba (1985). Credibility was established through dedicated weekly consultation with up to two experienced HIV-prevention researchers who served as Peer Debriefers (Lincoln & Guba). Emerging themes were presented and critiqued and alternatives suggested. The primary reviewer incorporated this review in to ongoing analysis of additional transcripts. This process continued throughout all stages of the thematic analysis. In order to maximize transferability to other contexts and settings, rich descriptions of TRB in this subset of HIV-infected MSM were presented as candidates for general themes across interviews. The general statements and restatements supporting transferability were undertaken to increase the applicability to the current sample thus supporting broader transferability across future potential studies in similar contexts. Dependability, which refers to the reliability and accuracy of the quality of data, was established by auditing research procedures thoroughly throughout the duration of the project. The research team used this audit to ensure all procedures were completed accurately. Other researchers in HIV prevention may "depend" upon this audit to repeat future studies. Based on this rigorous strategy, when these three are present, as described above, confirmability of results are high; that is, emerging themes of the current study describe objectively the experiences of HIV-infected MSM who engage in very high levels of TRB. In addition, to provide a measure of reliability, a secondary rater (with experience conducting qualitative analyses with sexual minority groups across five previous research studies) analyzed the emerging themes, resulting in a 98.2% total agreement in all themes and an 87.5% agreement in sub-themes.

Results

Demographic and Sexual Characteristics

Nine participants self-identified as White and five participants as African-American. No participant self-identified as Hispanic/Latino. Age ranged from 28 to 58 years, with a mean age of 45.2 years. Four participants reported having a primary partner with whom they lived or had sex on a regular basis. "Primary" was defined as engaging in sex on a regular basis with a committed partner or boyfriend. All participants reported having oral or anal

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intercourse with casual partners. "Casual" referred to a non-committed partner, friend with whom (they) had sex more than once. Ten participants reported having anonymous sexual partners. "Anonymous" was defined as partners who they met only once and whose name they did not know. Nine participants reported having sex with multiple partners simultaneously. Ten participants reported having sexual encounters in public (e.g., in public bathrooms, parks, alleys), and five described transactional sex acts for money, drugs or alcohol.

Emerging Qualitative Themes

Five descriptive themes emerged during content analysis: a) serostatus attribution, b) assumption of sexual partner's responsibility for safer-sex, c) sexual sensation seeking, d) ongoing substance use, and e) dissatisfaction with current relationships. Significant statements supporting the emerging themes may be found in Table 2.

Theme I: Serostatus attribution—Participants shared that they used indirect conversations with their sexual partners, past sexual experiences and observations before and during sex to make judgments about their sexual partners' HIV status. Participants provided examples of how once they learned that their sexual partners engaged in unprotected sex, they assumed that they also might be HIV-infected.

Theme II: Assumption of sexual partner's responsibility for safer-sex—Participants suggested their sexual partners were responsible for their own safer-sex negotiation or for keeping themselves safe during sexual risk taking, which could lead to HIV acquisition or other sexually transmitted infections (STIs). Their sense of their partner's responsibility tended to overlap with their perceived social norms about HIV disclosure and condom use efficacy, which were articulated as sub-themes.

Theme III: Sexual sensation seeking—Sexual sensation seeking may be defined as the pursuit of sexual excitement through external or internal stimuli. The desire to experience excitement seemed, in some themes, to discount awareness of positive or negative consequences. Participants identified sexual gratification (internal stimulus) and public sexual expression (external stimulus) as two sub-themes in which excitement seeking was experienced.

Theme IV: On-going substance use—Twelve participants reported using alcohol before or during anal sex, while two reported using illicit drugs (i.e., marijuana, heroin or crack/cocaine), and use of "harder" substances were usually in relation to transactional sex (i.e., exchanging or receiving sex for money, drugs or alcohol). Two potential sub-themes emerged. Substance and sex consisted of the presence of drugs and alcohol before and during unprotected anal intercourse (insertive or receptive), while transactional sex consisted of offering sexual activities for money, drugs, alcohol, and so forth.

Theme V: Dissatisfaction with Current Relationships—Some participants identified that they were dissatisfied with their current sexual relationships. For them, this dissatisfaction influenced their sexual risk taking in both long-term and short-term relationships. However, not all participants were looking for satisfied relationships, and some participants reported enjoying sexual encounters in public places, such as restrooms.

Discussion

Several distinct themes emerged from the qualitative analysis. Some HIV-infected MSM who presented with very high levels of sexual TRB diffused the responsibility of safer sex

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behaviors to their sexual partners and/or made potentially false assumptions that their partners were already HIV-infected. Cognitive justifications for the assumption of a partner's positive serostatus seem to be based, in part, on their partners' sexual behaviors, perceived HIV disclosure ambiguity, and lack of assertive condom use. However, these assumptions may not reliably distinguish HIV-infected partners from HIV-uninfected partners and, as a result, may contribute to higher levels of sexual TRB (Golden, Brewer, Kurth, Holmes, & Handsfield, 2004; Wolitski, Parsons, & Gomez, 2004). These misattributions of sexual partner's HIV status could have interfered with these participants' ability to identify their UAI events as potential HIV transmission risks for their partners. Moreover, these errors may be more likely to occur when drugs or alcohol are used before or during sex, because substance use may impair cognitive functioning and communication skills, contributing to misattributions of serostatus (Parsons, Severino, Nanin, Punzalan, von Sternberg, et al., 2006).

There is evidence that MSM make assumptions about the serostatus of sexual partners based on specific sexual activities (Sheon & Crosby, 2004; Parsons, et al., 2006). That is, HIV-uninfected MSM might assume their sexual partners are also HIV-uninfected if those partners do not insist on using a condom or do not disclose their serostatus, whereas HIV-infected MSM might assume that their sexual partners are HIV-infected if those partners do not insist on using a condom or do not disclose their serostatus. These data support recommendations from Wilkerson, Danilenko, Smolenski, Myer, and Rosser (2011) that HIV prevention interventions should help HIV-infected and at risk MSM to develop the skills to accurately understand their assumptions of risk behavior and serostatus, and be more comfortable with disclosure discussions in order to commit to healthy behavioral change.

Many of the MSM in this sample suggested that the responsibility to protect oneself lay with their sexual partners. This identified theme has also been identified in prior research as lack of "prevention altruism" (e.g., Nimmons, 1998; O'Dell, Rosser, Minor, & Jacoby, 2008) or cognitive dissonance in those HIV-infected MSM who believe that they do not need to protect their sexual partners (i.e. the onus of disclosure or protective behavior is the partner's responsibility). O'Leary and Wolitski (2009) suggested that when HIV-infected individuals engage knowingly in TRB it "may involve a breakdown of temporary suspension of moral mechanisms, such as personal responsibility beliefs and anticipatory self-evaluative reactions to one's behavior" (p. 478). Bandura (1986; 1999; 2002) has proposed that HIV prevention should be guided by the theory of "moral agency" that provide self-efficacy skills to prevent moral disengagement and enhance personal responsibility within the context of sexual risk.

For HIV-infected MSM receiving highly effective antiretroviral therapy (HAART), there may be another reason to engage in personal responsibility, because they are living longer with HIV. New prevention strategies could incorporate skill building for HIV-infected MSM so that they learn to engage in more responsible decision-making that could protect them from co-infections with other STIs (Mayer, O'Cleirigh, Covahey, Leidoff, VanDerwarker, et al., 2009) and HIV super-infection (i.e. becoming infected with a second strain) that might compromise HAART medication effectiveness. Although HAART and sexual risk taking did not emerge as a descriptive theme in the current study, future research should investigate how effective use of HAART may influence both cognitions and behaviors in the context of sexual risk.

Sexual risk taking in the context of high levels of sexual sensation seeking also emerged as a theme among study participants. This relationship has been previously identified among both HIV-infected and uninfected MSM (Crawford, Hammack, McKirnan, Ostrow,

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Zamboni, Robinson, Hope, 2003; Ostrow, Silverberg, Cook, Chmiel, Johnson, et al., 2008; Preston, D'Augelli, Kassab, & Starks, 2007), and the results of the current study extend these findings by suggesting that this relationship also may be particularly relevant for MSM who report very high levels of sexual TRB. In a recent study on a large sample of young adults, Charnigo, Noar, Garnett, Crosby, Palmgreen and Zimmerman (2012) identified that sensation seeking was associated with 11 risk outcomes of sexual behaviour; moreover, that specific trait operated synergistically with impulsive decision-making when predicting sexual risk taking in the context of substance use. High levels of sensation seeking among MSM have been associated with multiple risk taking behaviors (Zuckerman, 2007), where the benefit of added sensations might outweigh the cost of risks. Sensation seeking is commonly construed as an enduring individual difference (personality) construct (e.g., Zuckerman, 2007; Hoyle, Fejar, & Millar, 2000) and as such comprehensive personality assessment of HIV-infectted MSM who report very high levels of TRB that combine to increase risk for HIV transmission may help to inform prevention efforts with this group.

Dissatisfaction with sexual and intimate relationships was another commonly reported theme. The men in this study may have experienced a conflict between intimacy and risk-education motivations. Frost, Sirratt & Ouellette (2008) identified this conflict for gay and bisexual men who seek out sexual relationships with other men; that is, desired intimacy in a relationship might trump the motivation to keep them and their partners safe from HIV infection or other STIs, and therefore lead to exceptions from normative safer practices in partner selection and UAI. Golub, Starks, Payton and Parsons (2012) identified that intimacy beliefs were a significant predictor of UAI with partners, and they suggest prevention efforts should incorporate intimacy as a motivating factor for sexual behavior change. The pathways that link relationship and sexual dissatisfaction with high levels of HIV sexual TRB in the current sample are unclear. However, establishing sexual agreements has been related to relationship satisfaction in same-sex couples (Mitchell, Harvey, Champeau, Moskowitz, & Seal, 2011; Otis, Rotosky, Riggle, & Hamrin, 2006). Future research could explore the relationship between dissatisfaction and UAI with partners outside their primary relationship. Secondary HIV prevention programming with MSM who report very high rates of sexual TRB might benefit by understanding sexual risk within the context of relationship goals and by developing programs to enhance skills that negotiate intimacy and enhanced sexual satisfaction.

In summary, we found that HIV-infected MSM who reported very high levels of sexual TRB discussed this behavior in the context of unreliable determinations of their partners' HIV status, a reluctance to share responsibility for protecting their sexual partners from HIV, a tendency toward sensation seeking through sex and substance use in sexual situations, and substantial dissatisfaction with their sexual and intimate relationships. It is worth noting that there is an emerging body of research that addresses co-occurring psychosocial problems (Stall, Friedman, & Catania, 2008; Safren, Reisner, Herrick, Mimiaga, & Stall, 2010) that may exacerbate continued sexual risk behaviors that could transmit HIV and other STIs (Safren, Blashhill, & O'Cleirigh, 2011; Mustanski, Newcomb, & Clerkin, 2011; Stall, Friedman, & Catania, 2008). It is likely that a flexible approach that can address multiple pathways to sexual risk can help to expand the reach and impact of traditional secondary behavioral interventions. As suggested above, these themes may suggest treatment targets specific to this high risk group of MSM; focused cognitive restructuring to address serostatus misattribution; identifying sexual risk reduction targets motivated by personal sexual health rather than public health considerations; individualized harm reduction strategies to reduce sexual risk in the context of sexual sensation seeking and substance use; and intimacy and sex negotiation skills building to offset sexual risk in the context of relationship and sexual dissatisfaction. This treatment development work could be supported by quantitative studies, with sample sizes to provide sufficient power, to identify

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these relationships and further elucidate the pathways to sexual transmission risk. Comprehensive assessment of these MSM when they are first diagnosed with HIV may help to suggest behavioral treatment targets, tailored interventions and prevention interventions to help accommodate specific personality profiles.

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Table 1

Tenets and Steps for Analytic Review of Qualitative Data

Tenets of Qualitative Description Analysis	Analytic Steps Associated with Each Tenet
Record insights and reflections on the data	Create contact summary sheets to identify major insights and potential assumptions of interviewer.
Analytic immersion in all interviews	Read each interview separately to get the "gestalt" of each response. Review and identify potential themes.
Immersion in each interview	Conduct within-case analyses to discover significant statements, patterns, or phrases Code transcripts line-by-line
Comparison of significant statements	Conduct across-case analyses by looking for commonalities and differences across cases. Organize across-case findings into preliminary themes related to the research questions.
Free Writing	Ask "What would HIV- infected MSM who engage in very high levels of sexual TRB want the world to know about them?"
Gradually decide on a small group of generalizations that hold true for the data	Develop definitions for each category, subcategory and code. Organize categories of significant statements by themes.
Examine generalizations in light of what is known	Synthesize and reintegrate findings into existing literature.

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Table 2

Supportive significant statements from interviews

Emerging Theme	Significant statements	Race, Age
1. **Serostatus attribution**	1. "My personal opinion is if somebody was to approach me and pull down my pants and stick my penis in their mouth without putting a condom on…then they must be positive…and you're telling me to screw you without a condom, so you're not worried about anything I can give, that you must not already have."	B, 43 y/o
	2. "This particular person knows that I'm positive and he denies being positive, although I have my doubts. Why would anybody want to get it without protection by someone who is proclaiming to be positive?"	B, 46 y/o
	3. "People who say that they are HIV unknown to me is a flag for 'I haven't been tested in a really long time and I've been promiscuous,' which means that I am not the first person that they're doing this with and I am not going to be presenting the high amount of risk …So unknown to me just means positive in my experience."	W, 38 y/o
2. **Assumption of partner's responsibility for safer-sex**	4. "Because people don't really ask that of me (serostatus)…HIV and AIDS have been around for years and people should know the risk that they're getting into. So, if you choose not to use condoms, I just think that's on you, shame on you."	B, 38 y/o
	5. "I won't put on a condom unless they ask me to or unless they hand it to me, in which case I'll put it on, but if they didn't, I figure they know…they know the risks…they know what they are opening themselves up to."	W, 38 y/o
3. **Sexual sensation seeking**	6. "If I want to feel like I'm being made love to, I choose a man… With a man I feel more -- I can feel weak. With a woman I can feel strong. I can allow myself to feel weak, in other words with a man I can be the feminine…I tend to want to feel what they feel. I want to feel sort of protected… but it usually doesn't work out that way… But, that's what I want."	W, 53 y/o
	7. "I mean, it's exciting -- public sex is fun, it's kind of exciting, it's kind of like you're getting away with something."	W, 28 y/o
	8. "I like the thought of getting caught. That's something, the danger in a sense…nobody knew what we were doing…The excitement of the whole scenario."	W, 58 y/o
4. **Ongoing substance use**	9. "I don't know if I tell them. I'd like to believe I did, but I'm not sure sometimes…I'm not up front (about using condoms) when I'm drunk out of my mind, when I'm really not aware where I am or what I'm doing…"	W, 53 y/o
	10. "I would say 80 – 90% of the time (with multiple partners) there's very seldom using any condoms…and when I smoke crack I don't think it (using condoms) even crosses my mind."	B, 54 y/o
	11. "I use it (sex) for monetary gain…if I'm broke…I have no shame in my game, I'm like, well put your money where your mouth is…I just knew they had money, they had propositioned me before, and I called him back when I needed it."	B, 43 y/o
5. **Dissatisfaction with current relationships**	12. "We have been together for 12 years, and have had difficulty in our sexual relationship…I think in turn for my own psyche, I decided that, "Well, if he can have sex outside the relationship, then I can have sex outside the relationship… And it didn't work that way. I did it, and I just wasn't happy about it."	W, 45 y/o
	13. "I love my partner, but one time he just wants to top, like last night, I didn't really want it…he did his thing, and I went to the bathroom to wash off, and he didn't even ask me if I wanted to get off…he could have at least asked…but my partner does not want to bottom…"	B, 46 y/o
	14. "I think that's why I like the bathrooms, cruising in the bathrooms a lot because it's not like I'm trying to go there and meet somebody and have a long-term relationship, I'm really not a relationship type of person. I'm spontaneous."	B, 38 y/o

W = White, B = Black