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Mental Health and HIV Risk in Men Who Have Sex with Men

Steven A. Safren, PhD^{*,†}, Sari L. Reisner, MA^{†,‡}, Amy Herrick, MA[§], Matthew J. Mimiaga, ScD, MPH^{*,†,‡}, and Ron Stall, PhD, MPH[§]

^{*}Massachusetts General Hospital/Harvard Medical School, Boston, MA

[†]The Fenway Institute, Fenway Health, Boston, MA

[‡]Harvard School of Public Health, Boston, MA

[§]Department of Behavioral and Community Health Sciences, Graduate School of Public Health, University of Pittsburgh, Pittsburgh, PA

Abstract

Evidence-based HIV prevention interventions with men who have sex with men (MSM) in the United States have moderate effect sizes in reducing HIV sexual risk behavior. Mental health and psychosocial problems, which both disproportionately affect MSM populations and are implicated in HIV transmission risk behaviors, also likely interfere with the uptake of HIV behavioral interventions. Moreover, given that mental health and psychosocial problems such as depression, substance use, and violence frequently co-occur for many MSM (eg, as “syndemic conditions”), what is probably needed are combination prevention efforts, or prevention “cocktails,” similar to treatment “cocktails,” that address the psychological and behavioral mechanisms that interact to produce elevated risk for HIV. Such interventions should incorporate a holistic framework to address the sexual health and overall well-being of MSM. Addressing co-occurring psychosocial risk factors is apt to improve effect sizes of current HIV prevention interventions and allow for more effective uptake by MSM.

INTRODUCTION

Evidence-based HIV prevention interventions with men who have sex with men (MSM)ⁱ in the United States have successfully reduced HIV sexual risk behaviors.^{1–7} A meta-analysis of 44 HIV behavioral interventions found that randomized controlled trials of prevention interventions and model intervention programs with MSM reduced sexual risk by about one third.⁶ Nonetheless, despite these empirically grounded prevention efforts, MSM continue to be the largest group of individuals infected with HIV in the United States; they comprise more than half of all new HIV infections annually.^{8,9} Given that MSM are more than 44 times more likely to be newly diagnosed with HIV than other men,¹⁰ a focus on ameliorating disparities in HIV infection is essential for enhancing the health of MSM at the population level. A question that warrants immediate attention for both the science of HIV prevention and public health practice is: How can we enhance current HIV behavioral

Correspondence and reprints: Steven Safren, Massachusetts General Hospital, 1 Bowdoin Sq., 7th Floor, Boston, MA 02114 (ssafren@partners.org), 617/724-0817, 617.724.8690 (fax), 617/943- 9312 (mobile).

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ⁱBecause not all men identify as “gay,” we use the term “MSM” throughout this commentary, although almost certainly most of the men who participated in the studies described in this paper would identify as “gay.”

interventions to improve current effect sizes and promote long-term and sustainable behavior change to reduce HIV sexual risk among MSM?

DISCUSSION

HIV Risk in MSM Occurs in the Context of Other Mental Health and Psychosocial Problems

Most research on sexual minority men's health in the HIV era has focused on risk for sexual transmission of sexually transmitted infections, including HIV. However, increasing evidence has shown that US MSM populations also suffer from very high rates of depression, violence victimization, and substance abuse across the life course,^{11–21} among other health problems. Moreover, research has demonstrated that the psychosocial factors that disproportionately affect MSM—depression, for example—are related to HIV sexual risk taking.^{22–25}

While many studies involving MSM have shown interconnections between psychosocial factors and HIV risk, such as substance use and high-risk sex,^{21,26} recent studies have focused on documentation of how these diverse psychosocial issues interact to produce elevated HIV risk behavior among MSM, a phenomena known as a *syndemic*.^{27,28} According to the Centers for Disease Control and Prevention, a syndemic is “two or more afflictions, interacting synergistically, contributing to excess burden of disease in a population.”²⁹ Psychosocial health problems such as substance use, depression, and violence have a tendency to interact so that their impact on the overall health of the individual is greater than one would expect the additive effect to be.²⁸

The “syndemic condition” has been documented in samples of adult²⁸ and young²⁷ MSM. Using a probability sample of MSM in 4 major US cities, Stall et al (2003) found that the more psychosocial health problems an individual endorsed, the greater their risk for both participation in sexual risk behaviors and HIV infection. Mustanski et al (2007) found similar results among a sample of young MSM, where endorsement of each additional psychosocial health problem significantly increased the odds of unprotected anal intercourse (OR=1.42, CI=1.19, 1.68), multiple sex partners (OR=1.24, CI=1.05, 1.47), and HIV seroprevalence (OR=1.42, CI=1.12, 1.80). This pair of studies demonstrated that as the number of psychosocial conditions endorsed by individuals increased, their odds of engagement in HIV sexual risk behaviors also increased, as did their odds of HIV infection. It has been suggested that this set of co-occurring health problems (ie, the presence of a syndemic condition) may actually be driving the HIV epidemic among MSM.²⁸

If sexual minority men suffer from a syndemic that is working to drive HIV risk, we must question why MSM are at greater risk than other populations of men, and examine what might be driving the syndemic condition among sexual minority men. Young men's development is influenced by many contextual factors, including socioeconomics, race/ethnicity, and familial variables. However, sociocultural pressures, including the pressure to meet socially valued masculinity norms (not the least of which includes heterosexuality) also affect the development and behavioral patterns of MSM. Masculine Socialization Stress results from the “shaming and other punishment of gay males for failing to achieve masculine ideals.”³⁰ This gender role-related stress occurs through overt homophobia, such as hate crimes and the use of derogatory language, as well as in more institutionalized and subtle forms, such as the recent proliferation of so-called pro-marriage legislation.

Further, if homophobia is a culture-wide phenomenon, then it affects everyone, including children. Homophobic attacks directly made against or witnessed by boys who will in time grow up to be sexual minority men are thus occurring at an age when they are unlikely to be able to understand why these attacks are occurring or to find social support to fend off the

attacks. To the extent that men internalize these attacks to mean that they are less worthy than other males, that their sexuality is something that is shameful and should be hidden, or that their sexuality is forbidden by religious script or contrary to “nature,” these boys will grow up to be men at higher risk for depression, substance abuse, or victimization, which can snowball into raising levels of risk for HIV and other sexually transmitted infections. Finding ways to address multiple psychosocial health conditions so that they support HIV risk reductions may well increase the effect sizes of HIV prevention interventions.

These Mental Health and Psychosocial Problems Likely Interfere with Existing HIV Prevention Interventions

The high rates of significant and distressing psychosocial problems facing MSM are not only associated with HIV risk behavior and HIV infection rates in this population, but also likely interfere with the ability of high-risk individuals to benefit from traditional HIV prevention interventions that do not address the context of HIV risk behavior. Evidence of this can be seen in 4 meta-analyses of behavioral interventions for sexual risk taking among HIV-uninfected MSM conducted since 2003, which generally have shown individual-, group-, and community-level intervention effects in the moderate range.^{2–6}

Interventions for HIV risk reduction among MSM have been delivered at the individual level and generally target social psychology variables theorized to be associated with health behavior change. These variables include self-efficacy, attitudes and beliefs, motivations, perceived social norms, perceived risks and benefits of a health behavior, information, and skills building (see Mimiaga et al, 2008, for a review of theories behind individual HIV interventions³¹). Given the high frequency of co-occurring psychosocial problems and their association to HIV sexual risk behavior, it is necessary to know how such problems would interact with the aforementioned social psychology variables that are at the basis of existing HIV risk reduction interventions for MSM.

Clinical depression and anxiety are examples of mental health conditions that have the potential to interfere with the effect of existing behavioral interventions for HIV risk reduction in MSM: The symptoms of these conditions can be directly related to the psychological variables at their base. Symptoms of depression, for example, include persistent sadness, anhedonia, concentration problems, feelings of guilt and worthlessness, and loss of energy. In more than 30 years of research using Aaron Beck’s empirically tested cognitive theory of depression, studies have demonstrated that depression is related to excessively negative and distorted cognitions and beliefs, including thoughts and cognitions about one’s self, others, and the world, as well as the past, present, and future.³² Consider such symptoms and associated negative beliefs with respect to a social-cognitive model of sexual risk taking that includes variables such as self-efficacy and perceived social norms.^{33–35} Self-efficacy, the variable at the core of this model, is the belief that a person feels he or she has the ability to do a certain task—in this case, use a condom in different situations. According to this theory, a sexual minority man with clinical depression who has negative thoughts about himself and the world would therefore likely hold distorted, negative cognitions and beliefs related to his own self-efficacy, social norms about condom use, or the other cognitive variables related to sexual risk.

We recently tested the hypothesis that depression may moderate the degree to which a social-cognitive theory could predict HIV transmission risk behavior in a sample of HIV-infected MSM.³⁶ We found that for those who did not screen in for major depression, the model fit the data well, with negative expectancies about condom use and social norms about condom use being associated with self-efficacy, and self-efficacy in turn being associated with less HIV transmission risk behavior. For those who screened in for major depression, however, the model did not fit the data. In this case, self-efficacy, the central

hypothesized mediator, was not associated with the central outcome: HIV transmission risk behavior. Although this was the first study to empirically examine the degree to which a clinically significant mental health problem (in this case, depression) would interfere with a conceptual model of unsafe sex, our belief is that such a phenomenon would extend to other syndemic conditions, such as post-traumatic stress disorder, other anxiety disorders, substance abuse, or current intense life stressors, such as domestic violence. Mental health problems moderating the effect of models behind behavioral interventions to reduce HIV risk behaviors would be consistent with a secondary analysis from project EXPLORE that suggested that childhood sexual abuse may have moderated the potential efficacy of the EXPLORE intervention for HIV-negative MSM.¹⁹

Currently, few interventions address mental health in the context of HIV sexual risk (see Herbst et al, 20073). However, a variety of cognitive behavioral interventions are well-studied and validated for the treatment of DSM-IV mood and anxiety disorders.³⁷ Typically, these treatments are approximately 12 to 20 sessions long and involve therapy sessions and home practice with a trained therapist. Behavioral interventions for HIV risk reduction could be integrated into such treatments. For example, an intervention presented by Mimiaga and colleagues integrates behavioral activation therapy and HIV risk reduction counseling in MSM who abuse crystal meth.³⁸ The conceptual model focuses on anhedonia (a loss of interest in previously enjoyed activities) as a consequence of continued meth use. For individuals who abuse meth, drug use becomes the central means for (or the only means for) obtaining enjoyment.³⁹ The hypothesized mechanism of intervention action is that behavioral activation will gradually allow individuals to relearn how to engage in pleasurable, goal-directed, nondrug use activities (eg, interests or hobbies that were enjoyable before meth use). These life activities then serve as a natural reinforcement for functional behavior by increasing pleasure and mastery, and improving mood when not on meth, thereby resulting in reductions in unprotected sex and meth use. Additionally, we have an intervention in progress that addresses another highly prevalent psychosocial problem among MSM discussed above—childhood sexual abuse. This intervention involves integrating cognitive processing therapy⁴⁰ with HIV risk reduction counseling for HIV-uninfected MSM with a history of childhood sexual abuse. By addressing the relevant mental health problem, individuals may be better equipped to respond to integrated HIV prevention counseling.

CONCLUSION

Current HIV prevention intervention approaches aimed at reducing HIV risk behavior among MSM in the United States are the metaphorical equivalent of early AZT monotherapy to treat HIV infection. Current behavioral change technologies produce modest and statistically significant effect sizes, but typically only for short periods of time. Increasing the effect sizes of current intervention trials represents an important task moving forward, and integrating the treatment of mental health problems that frequently co-occur as syndemics may be one important way to do this.

Other steps may improve the effect sizes of existing interventions. One possibility would be to conduct in-depth qualitative interviews with men who did not change during an HIV prevention intervention and men who did change. Interviews may allow for greater understanding of positive change and strengths-based processes, as well as of barriers and obstructers that impede changes in men whose levels of HIV risk stays the same. Another possibility would be to conduct meditational analyses of proven interventions, with a view toward identifying the variables that predicted the most change and disentangling these from those variables that did not account for much change at all. After this type of analysis was completed, one could examine the intervention content, augment those activities that seemed

to be associated with greater change processes, cut down those intervention components that did not seem to contribute to change, and end up with a more empirically guided and tailored form of the intervention. Retesting the efficacy of the revised intervention might well yield more impressive effect sizes.

As stated above, psychosocial and mental health problems, which are disproportionately prevalent for MSM, may moderate the ability of existing prevention efforts to reduce HIV risk. Hence, in this article, we argue for conceptualizing HIV prevention efforts in MSM as prevention “cocktails” that address psychological and behavioral mechanisms that interact to produce elevated risk for HIV and that incorporate a more holistic framework to address MSM’s sexual health and overall well-being. Although potentially more costly than interventions that are easier to administer, addressing co-occurring psychosocial risk factors may not only improve the mental health of those at risk for HIV but also should improve effect sizes of current HIV prevention interventions and allow for more effective uptake of these interventions.

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REFERENCES

1. Crepaz N, Lyles CM, Wolitski RJ, et al. Do prevention interventions reduce HIV risk behaviors among people living with HIV? A meta-analytic review of controlled trials. *AIDS*. 2006; 20:143–157. [PubMed: 16511407]
2. Herbst JH, Sherba RT, Crepaz N, et al. A meta-analytic review of HIV behavioral interventions for reducing sexual risk behavior of men who have sex with men. *J Acquir Immune Defic Syndr*. 2005; 39:228–241. [PubMed: 15905741]
3. Herbst JH, Beeker C, Mathew A, et al. The effectiveness of individual-, group-, and community-level HIV behavioral risk reduction interventions for adult men who have sex with men. *Am J Prev Med*. 2007; 32:S38–S67. [PubMed: 17386336]
4. Johnson WD, Hedges LV, Diaz RM. Interventions to modify sexual risk behaviors for preventing HIV infection in men who have sex with men. *Cochrane Database Syst Rev*. 2003; 1:CD001230. [PubMed: 12535405]
5. Johnson WD, Holtgrave DR, McClellan WM, et al. HIV intervention research for men who have sex with men: A 7-year update. *AIDS Educ Prev*. 2005; 17:566–589.
6. Johnson WD, Diaz RM, Flanders WD, et al. Behavioral interventions to reduce risk for sexual transmission of HIV among men who have sex with men. *Cochrane Database Syst Rev*. 2008; 16:CD001230. [PubMed: 18646068]
7. Lyles CM, Kay LS, Crepaz N, et al. Best-evidence interventions: Findings from a systematic review of HIV behavioral interventions for U.S. populations at high risk, 2000–2004. *Am J Public Health*. 2007; 97:133–143. [PubMed: 17138920]
8. Centers for Disease Control and Prevention. HIV Surveillance Report. 2008 [Accessed June 21, 2010]. Available at: www.cdc.gov/hiv/topics/surveillance/resources/reports/.
9. Hall HI, Song R, Rhodes P, et al. Estimation of HIV incidence in the United States. *JAMA*. 2008; 300:520–529. [PubMed: 18677024]
10. Purcell, DW.; Johnson, C.; Lansky, A., et al. Calculating HIV and syphilis rates for risk groups: estimating the national population size of men who have sex with men [abstract #22896]; Presented at: 2010 National STD Prevention Conference; March 10, 2010; Atlanta, GA. [Accessed June 1, 2010]. Available at: <http://www.cdc.gov/hiv/topics/msm/resources/research/msm.htm>.
11. Berlan ED, Corliss HL, Field AE, et al. Sexual orientation and bullying among adolescents in the Growing Up Today Study. *J Adolesc Health*. 2010; 46:366–371. [PubMed: 20307826]

12. King M, Semlyen J, Tai SS, et al. A systematic review of mental disorder, suicide, and deliberate self harm in lesbian, gay, and bisexual people. *BMC Psychiatry*. 2008; 18:70. doi: 10.1186/1471-244X-8-70. [PubMed: 18706118]
13. Meyer IH. Prejudice, social stress, and mental health in lesbian, gay, and bisexual populations: conceptual issues and research evidence. *Psychol Bull*. 2003; 129:674–697. [PubMed: 12956539]
14. Cochran SD, Sullivan JG, Mays VM. Prevalence of mental disorders, psychological distress, and mental services use among lesbian, gay, and bisexual adults in the United States. *J Consult Clin Psychol*. 2003; 71:53–61. [PubMed: 12602425]
15. Cochran SD, Ackerman D, Mays VM, et al. Prevalence of non-medical drug use and dependence among homosexually active men and women in the US population. *Addiction*. 2004; 9:989–998. [PubMed: 15265096]
16. Cochran SD, Mays VM. Lifetime prevalence of suicide symptoms and affective disorders among men reporting same-sex sexual partners: Results from NHANES III. *Am J Public Health*. 2000; 90:573–578. [PubMed: 10754972]
17. Gilman SE, Cochran SD, Mays VM, et al. Risk of psychiatric disorders among individuals reporting same-sex sexual partners in the National Comorbidity Survey. *Am J Public Health*. 2001; 91:933–939. [PubMed: 11392937]
18. Marshal MP, Friedman MS, Stall R, et al. Sexual orientation and adolescent substance use: A meta-analysis and methodological review. *Addiction*. 2008; 103:546–556. [PubMed: 18339100]
19. Mimiaga MJ, Noonan E, Donnell D, et al. Childhood sexual abuse is highly associated with HIV risk taking behavior and infection among MSM in the EXPLORE Study. *J Acquir Immune Defic Syndr*. 2009; 2:340–348. [PubMed: 19367173]
20. Safren SA, Heimberg RG. Depression, hopelessness, suicidality, and related factors in sexual minority and heterosexual adolescents. *J Consult Clin Psychol*. 1999; 67:859–866. [PubMed: 10596508]
21. Stall R, Paul J, Greenwood G, et al. Alcohol use, drug use, and alcohol-related problems among men who have sex with men: The Urban Men’s Health Study. *Addiction*. 2001; 96:1589–1601. [PubMed: 11784456]
22. Chesney MA, Koblin BA, Barresi PJ, et al. An individually tailored intervention for HIV prevention: baseline data from the EXPLORE study. *Am J Public Health*. 2003; 93:933–938. [PubMed: 12773358]
23. Reisner SL, Mimiaga MJ, Skeer M. Clinically significant depressive symptoms as a risk factor for HIV infection among black MSM in Massachusetts. *AIDS Behav*. 2009; 13:798–810. [PubMed: 19462228]
24. Rogers G, Curry M, Oddy J, et al. Depressive disorders and unprotected casual anal sex among Australian homosexually active men in primary care. *HIV Medicine*. 2003; 4:271–275. [PubMed: 12859327]
25. The EXPLORE Study Team. Effects of a behavioural intervention to reduce acquisition of HIV infection among men who have sex with men: the EXPLORE randomised controlled study. *Lancet*. 2004; 364:41–50. [PubMed: 15234855]
26. Hirshfield S, Remien RH, Humberstone M, et al. Substance use and high-risk sex among men who have sex with men: a national online study in the USA. *AIDS Care*. 2004; 16:1036–1047. [PubMed: 15511735]
27. Mustanski B, Garofalo R, Herrick A, et al. Psychosocial health problems increase risk for HIV among urban young men who have sex with men: preliminary evidence of a syndemic in need of attention. *Ann Behav Med*. 2007; 34:37–45. [PubMed: 17688395]
28. Stall R, Mills TC, Williamson J, et al. Association of co-occurring psychosocial health problems and increased vulnerability to HIV/AIDS among urban men who have sex with men. *Am J Public Health*. 2003; 93:939–942. [PubMed: 12773359]
29. Syndemic prevention network: Spotlight on syndemics [Web page]. Atlanta, GA: Centers for Disease Control; 2008 January 30 [Accessed June 21, 2010]. Available at:<http://www.cdc.gov/syndemics/>.
30. Stall, R.; Friedman, M.; Catania, J. Interacting epidemics and gay men’s health: a theory of syndemic production among urban gay men. In: Wolitski, RJ.; Stall, R.; Valdiserri, RO., editors.

Unequal Opportunity: Health Disparities Affecting Gay and Bisexual Men in the United States. New York, NY: Oxford University Press; 2008. p. 251

31. Mimiaga, MJ.; Reisner, S.; Reilly, LC., et al. Individual interventions. In: Mayer, KH.; Pizer, H., editors. HIV Prevention: A Comprehensive Approach. Amsterdam, Netherlands: Academic Press; 2009. p. 203-239.
32. Beck AT. The evolution of the cognitive model of depression and its neurobiological correlates. *Am J Psychiatry*. 2008; 165:969–977. [PubMed: 18628348]
33. Bandura, A. *Social Foundations of Thought and Action: A Social Cognitive Theory*. Englewood Cliffs, NJ: Prentice Hall; 1986.
34. Wulfert E, Wan CK. Condom use: a self-efficacy model. *Health Psychol*. 1993; 12:346–353. [PubMed: 8223358]
35. Wulfert E, Wan CK, Backus CA. Gay men’s safer sex behavior: an integration of three models. *J Behav Med*. 1996; 19:345–366. [PubMed: 8836826]
36. Safren SA, Traeger L, Skeer MR, et al. Testing a social-cognitive model of HIV transmission risk behaviors in HIV-infected MSM with and without depression. *Health Psychol*. 2010; 29:215–221. [PubMed: 20230095]
37. Barlow, DH., editor. *Clinical Handbook Of Psychological Disorders: A Step-by-Step Treatment Manual*. 4th ed.. New York, NY: Guilford Press; 2008.
38. Mimiaga, MJ.; Reisner, SL.; Pantalone, DW., et al. An open phase pilot of behavioral activation therapy and risk reduction counseling for MSM with crystal methamphetamine abuse at risk for HIV infection [Paper Session 2]; Presented at: Society of Behavioral Medicine 2010 Annual Meeting; April 7–10, 2010; Seattle, Washington. [Accessed August 10, 2010]. PowerPoint available at:<http://www.sbm.org/meeting/2010/presentations/Thursday/Paper%20Sessions/Paper%20Session%2002/An%20open%20phase%20pilot%20of%20behavioral%20activation%20therapy.pdf>.
39. Mimiaga MJ, Fair AD, Mayer KH, et al. Experiences and sexual behaviors of HIV-infected MSM who acquired HIV in the context of crystal methamphetamine use. *AIDS Educ Prev*. 2008; 20:30–41. [PubMed: 18312065]
40. Resick, PA.; Monson, CM.; Chard, KM. *Cognitive Processing Therapy: Veteran/Military Version*. Washington, DC: Department of Veterans’ Affairs; 2007.