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.

Key Words: mental health, HIV, MSM

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INTRODUCTION

Evidence-based HIV prevention interventions with men who have sex with men (MSM) (because not all men identify as "gay," we use the term "MSM" throughout this commentary) in the United States have successfully reduced HIV sexual risk behaviors.\textsuperscript{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.\textsuperscript{6} 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.\textsuperscript{8,9} Given that MSM are more than 44 times more likely to be newly diagnosed with HIV than other men,\textsuperscript{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: How can we enhance current HIV behavioral 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,\textsuperscript{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.\textsuperscript{22–25}

Although many studies involving MSM have shown interconnections between psychosocial factors and HIV risk, such as substance use and high-risk sex,\textsuperscript{21,26} recent studies have focused on documentation of how these diverse psychosocial issues interact to produce elevated HIV risk behavior among MSM, a phenomenon known as a "syndemic."\textsuperscript{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."\textsuperscript{28} 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.\textsuperscript{28}

The “syndemic condition” has been documented in samples of adult\textsuperscript{29} and young\textsuperscript{28} MSM. Using a probability sample of MSM in four major US cities, Stall et al\textsuperscript{28} 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\textsuperscript{27} found similar results among a sample of young MSM ages 16 to 24, where endorsement of each additional psychosocial health problem...
significantly increased the odds of unprotected anal intercourse [odds ratio (OR) = 1.42, confidence interval (CI) = 1.19 to 1.68], multiple sex partners (OR = 1.24, CI = 1.05 to 1.47), and HIV seroprevalence (OR = 1.42, CI = 1.12 to 1.80). This pair of studies demonstrated that as the number of psychosocial conditions endorsed by individuals increased, their odds of engaging 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.

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.” This gender role-related stress occurs through overt homophobia, such as hate crimes and the use of derogatory language, and in more institutionalized and subtle forms, such as the recent proliferation of so-called promarriage 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 revictimization, 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 four meta-analyses of behavioral interventions for sexual risk taking among HIV-uninfected MSM conducted since 2003, which generally have shown individual-level, group-level, and community-level intervention effects in the moderate range.

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. 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; and the past, present, and future. 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. 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. 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 posttraumatic 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.3 However, a variety of cognitive-behavioral interventions are well studied and validated for the treatment of mood and anxiety disorders.32 Typically, these treatments are approximately 12–20 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 Mimiga et al integrates behavioral activation therapy and HIV risk reduction counseling in MSM who abuse crystal meth amphetamine.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 relaim 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.

CONCLUSIONS

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. 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, and of barriers and obstructers that impede changes in men whose levels of HIV risk stays the same. Another possibility would be to conduct mediational 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 disproportionally prevalent for MSM, may moderate the ability of existing prevention efforts to reduce HIV risk. 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 risk reduction.

REFERENCES


