The effect of mental health issues on sexual risk behaviours and antiretroviral medication adherence among men who have sex with men

Questions

- What are the effects of mental health issues on antiretroviral medication adherence, sexual risk behaviours and overall health among men who have sex with men?
- What effective interventions exist to address mental health issues among men who have sex with men?

Key Take-Home Messages

- Men who have sex with men and other sexual minorities may experience mental health problems that are rooted in sexual minority stress (1-4).
- Multiple mental health problems can co-occur among men who have sex with men, creating a "psychosocial syndemic" (5;6).
- Several studies have demonstrated that mental health issues may increase sexual risk taking among men who have sex with men (7-10) and affect adherence to antiretroviral medications (11-13).
- Addressing mental health issues as part of HIV prevention trials may enhance intervention outcomes for men who have sex with men (6;7;10;14).

The Issue and Why It's Important

Men who have sex with men represent over half of all new HIV infections in North America (15;16). Unprotected receptive anal intercourse with partners with HIV or whose HIV status is unknown puts men who have sex with men at high risk of acquiring HIV (17). Men can reduce their risk by using condoms correctly, by adhering to antiviral medication for prevention (PrEP) and by encouraging HIV-positive partners to adhere to their antiretroviral medication

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and maintain an undetectable viral load (18).

Mental health issues are associated with an increase in sexual risk behaviours (7-10;14;19;20) and poorer adherence to antiretroviral medication (11-13). While many gay and bisexual men enjoy good mental health (21), men who have sex with men are at higher risk of experiencing mental health issues when compared to the general public (3;6;22;23).

High rates of comorbid mental health issues among men who have sex with men can be attributed to sexual minority stress (1-3;6). As a sexual minority, men who have sex with men may experience chronic stress within their social environments (2;3). Negative experiences such as stigma, discrimination, internalized homophobia and violence adversely affect the psychological health of men who have sex with men (2;3;6;24;25), leading to depression (21;23), generalized anxiety disorder (23;26), posttraumatic stress disorder (4), and non-medicinal or recreational drug use (27;28).

Addressing gay men's mental health issues can reduce sexual risk taking and improve adherence.

What We Found

Sexual minority stress, mental health, and sexual risk behaviour

Sexual minority stress

The minority stress model suggests that excessive stress adversely impacts the mental and behavioural health outcomes of men who have sex with men (2;3). Internalized homophobia, social anxiety, and stressful life events may also be associated with HIV sexual risk behaviours.

Internalized homophobia or homonegativity occurs when a gay or bisexual person accepts society's negative attitude towards homosexuality (2). A 2008 cross-sectional study among 675 HIV-positive men who have sex with men found that greater levels of homonegativity led to unsafe sexual practices (29). Specifically, being less 'out' was a strong predictor of infrequent disclosure of serostatus to secondary partners, and discomfort with one's sexual orientation was associated with decreased condom self-efficacy. However, a 2011 meta-analysis on internalized homophobia and sexual risk had mixed results (30). The authors found that there was a stronger relationship between homonegativity and sexual risk behaviours between 1998 and 2008 but this relationship decreased after 2008.

Two studies discussed the association between social anxiety (the

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fear of negative evaluation in social environments) and unprotected insertive anal intercourse among men who have sex with men. One study among young gay and bisexual men (n=100) found an association between anxiety and unprotected insertive anal intercourse (aOR=1.04, 95% CI=1.001-1.07; p<.05) (31). A second study among HIV-positive men who have sex with men (n=136) had similar findings, demonstrating a correlation between anxiety and unprotected insertive anal intercourse (OR=3.01, 95% CI=1.09-8.26; p=.03) (32).

Stressful life events among sexual minorities are also associated with negative mental health outcomes (3). In a longitudinal study of men who have sex with men (n=74) who had endured a specific stressful life event (i.e. the loss of a close friend or partner to AIDS), men who also experienced minority stressors such as internalized homophobia and discrimination reported an increase in sexual risk behaviours, depressive symptoms and substance use (1). In an Ontario study that measured stressful life events (e.g. health, relationships, bereavement, finances, crime, etc.) among gay and bisexual men, the risk of HIV infection increased with the number of stressful life events. Men who reported five or more events had two and a half times the risk of acquiring HIV (OR=2.5, 95% CI=1.3-4.7) (33).

A considerable amount of research has looked at minority stress and sexual risk among ethnoracial men who have sex with men (34-40) – with mixed results. In a study of African American, Asian/Pacific Islander, and Latino men who have sex with men (n=1,196), racism within the gay community was a major source of stress (35). Specifically, men who experienced racism in the past six months were more likely to engage in unprotected anal intercourse than those who did not (aOR=1.71, 95% CI=1.15-2.53; p=.0075). Another study examining the impact of lifetime trauma among young HIV-positive African American men who have sex with men (n=40) found that higher levels of post-traumatic stress symptoms in the past 30 days were associated with decreased condom use, but the total number of lifetime traumatic events was not associated with sexual risk behaviours (37).

Depression

Several studies identified associations between depression and sexual risk behaviours in men who have sex with men:

- A study of 106 sexually active HIV-positive men in New York found higher levels of depression increased the probability of engaging in unprotected receptive intercourse (OR=1.71, 95% CI=1.00-2.90, p<.05) (41).

- Among 205 predominantly Hispanic men who have sex with men in South Florida, researchers found a statistically significant relationship between higher levels of depression and lower levels of safer sexual behaviours (42).

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- A U.S. study looked at a nationwide sample of 332 men who have sex with men who used the internet as a means of meeting partners and found that the more depressed men were, the less likely they were to use condoms (p=.005) (43).

- In a cross-sectional study of 120 New York City men who have sex with men who deliberately engaged in condomless sex, the HIV-negative men who engaged in unprotected anal intercourse with an HIV-positive partner experienced greater levels of depression than those who did not engage in unprotected anal intercourse (44).

- A U.S. study of 1,540 HIV-positive and negative men who have sex with men who reported engaging in unprotected sexual intercourse found that men who had more depressive symptoms engaged in more sexual risk behaviours, and that this association was mediated by self-efficacy and cognitive escape (45).

Three other studies suggest a correlation between moderate levels of depression and sexual risk:

- In a longitudinal study of 4,295 HIV-negative men who have sex with men from six US cities, HIV infection was associated with mild depression (HR=1.48, 95% CI=1.12-1.96; p=.05) (46). The authors hypothesized that participants who experience mild levels of depression may not seek treatment for their depressive symptoms, which could account for an increase in risk behaviours.

- Another longitudinal analysis of 746 HIV-positive men who have sex with men in a 'prevention for positives' study in New York City found a nonlinear association between depression and HIV sexual risk behaviours (47). Using different measures of depression across multiple study sites, moderate (as opposed to high or low) levels of depression were associated with increases in sexual risk over a 12-month period.

- In a Massachusetts study of 197 black men who have sex with men, men who reported serodiscordant unprotected anal sex with a non-main male partner were more likely to be moderately depressed (measured using the Center for Epidemiologic Studies Depression Scale), than those who did not (aOR=9.86, 95% CI=1.51-64.61; p=.02) (48). Moderately depressed men were also more likely to have been diagnosed with a sexually transmitted infection in the past 12 months (aOR=8.33, 95% CI=1.43-48.38; p=.02).

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A psychosocial syndemic

Anxiety, depression and other mental health issues can occur simultaneously in men who have sex with men and often interact synergistically to produce what is called a "psychosocial syndemic" (5;6). The term syndemic is used to describe the interconnectivity of two or more epidemics, arising from social conditions, that interact to produce negative health outcomes (49). We identified four different studies among men who have sex with men that found that as syndemic factors increased, so did the likelihood of sexual risk:

- A cross-sectional study in American urban centres of 2,674 men who have sex with men measured four psychosocial problems – polydrug use, depression, partner violence and childhood sexual abuse – to determine whether having more of these problems increased sexual risk taking (10). As the number of co-occurring mental health problems increased, so did the likelihood of the men being HIV-positive. Compared to men who did not report a psychosocial health problem:
  - men with one problem were 1.6 times more likely to engage in unprotected anal intercourse (95% CI=1.2-2.1)
  - men with two problems were 2.4 times more likely to engage in unprotected anal intercourse (95% CI=1.6-3.4)
  - men who reported three or four problems were 3.5 times more likely to engage in unprotected anal intercourse (95% CI=2.2-5.6 (P<.001).
- Participants in a cross-sectional study of 310 young, ethnically diverse men who have sex with men in Chicago were scored on six different psychosocial problems: sexual assault, intimate partner violence, psychological distress, binge drinking, street drug use and marijuana use. As the number of psychosocial health problems increased, so did the odds of the men having multiple partners (OR=1.24, 95% CI=1.05-1.47), having unprotected anal intercourse (OR=1.42, 95% CI=1.19-1.68) and being HIV-positive (OR=1.42, 95% CI=1.12-1.80; P<.05) (8).
- One study of 3,934 men who have sex with men (n=3,934) across 151 countries found a significant relationship between the number of syndemic conditions (e.g. depression, substance use, violence, sexual stigma, homelessness) and unprotected anal intercourse (9). Men who have sex with men who reported three or more syndemic factors (n=185) were twice as likely to engage in unprotected anal intercourse than men who reported none (aOR=2.03, 95% CI=1.43-2.89; P<.001).

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- A longitudinal study of 4,295 HIV-negative men who have sex with men calculated a syndemic variable based on five factors: childhood sexual abuse, depression, alcohol use, stimulant use, and polydrug use. At baseline and every six months for a period of 48 months, participants completed HIV testing and behavioural surveys. The study found a relationship between concurrent psychosocial problems and HIV seroconversion (7). Compared to men who had no psychosocial health problems, those who reported four or five syndemic factors were almost nine times more likely to become HIV-positive during follow-up (aHR=8.69, 95% CI=4.78-15.44).

Mental health and antiretroviral therapy adherence

One systematic review (50) and one meta-analysis (12) found that poor mental health among people living with HIV is significantly associated with non-adherence to antiretroviral medications.

Only one study (13) – a community-based sample of 199 HIV-positive men who have sex with men aged 50 and older – specifically examined psychosocial burdens and adherence. Informed by syndemic theory, this cross-sectional study assessed levels of depression, post-traumatic stress, stigma and sexual compulsivity. Men were assigned an adherence score based on missed doses in the past weekend, missed doses in the past four days, taking doses off-schedule in the past four days, and not taking doses correctly (e.g. with or without food). After controlling for age and education level, the authors found that men who experienced greater levels of HIV-related stigma were more likely to miss doses and not follow medication instructions. Higher levels of sexual compulsivity were also associated with not taking doses on a specific schedule and missing doses on weekends.

Interventions that address mental health of men who have sex with men in the context of sexual risk

Some studies suggest that, to improve the effectiveness of HIV prevention programs for men who have sex with men, interventions should include a mental health component (6;7;10;14). In fact, the presence of co-occurring psychological or syndemic risk factors may be interfering with the effectiveness of current HIV prevention interventions (14). However, we found only a few interventions tailored for men who have sex with men that specifically attempt to address minority stress and mental health in the context of sexual risk reduction.

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40 & Forward

This group-level, sexual risk reduction pilot intervention (51) was conducted with 84 gay and bisexual men aged 40 and older who reported depression, loneliness and social anxiety. The objective of the intervention was for participants to improve interpersonal and communication skills, expand social networks, and identify social isolation and mental health issues for older sexual minority men. For two hours a week over the course of six weeks, participants met with a trained peer facilitator and one another over dinner, discussing topics such as decision-making, safer sex, activity scheduling, problem solving, partner communication and support networks. The researchers observed statistically significant changes post-intervention including fewer negative psychosocial outcomes and more self-efficacy in condom use. Participants reported that the intervention was acceptable and helpful.

Project Enhance

Project Enhance (52), a sexual risk reduction intervention facilitated by a medical social worker, included one-on-one case management for psychosocial problems, counselling, and sexual risk behaviours among men who have sex with men. The intervention was tested with 201 HIV-positive men who were randomized to standard care or the intervention. The experimental condition included five 50 to 90 minute sessions over the course of three months, plus 'booster' visits that occurred during the one-year follow-up. Both groups saw a reduction in HIV transmission risk behaviours. There were no statistically significant differences between the two study arms in terms of reductions in depressive symptoms; however, men who received the intervention reported greater reductions in HIV transmission risk behaviours than those who received standard care.

Effective Skills to Empower Effective Men (ESTEEM) (53)

ESTEEM (53) is an individual-level cognitive-behavioural treatment intervention intended to address minority stressors in young gay and bisexual men. Sixty-seven men were randomized to the waitlist or to immediate treatment. Men in the immediate treatment arm received 10 sessions that included individualized cognitive-behavioural therapy to reduce minority stress processes and improve depression, anxiety, condomless sex and alcohol use. Compared to patients on the waitlist, the men who received immediate treatment experienced a significant reduction in depressive symptoms, alcohol use problems, sexual compulsivity and condomless sex with casual partners.

Through addressing minority stressors in men who have sex with men, these group and individual level interventions showed a reduction in sexual risk behaviours. However, it is important to note that these interventions are preliminary in nature, and do not address a wide range of syndemic conditions.

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Factors That May Impact Local Applicability

While most studies cited in this review were from the U.S., we did include papers from other high income countries (Canada, Taiwan and the Netherlands). Caution should be taken when interpreting the results, as minority stress and psychosocial outcomes among men who have sex with men may differ depending on the socio-cultural and political environments in these high-income countries. However one study (9) using a global sample of men who have sex with men had similar findings as the studies based in high income countries.

What We Did

We searched Medline and PsycInfo using a combination of text terms (gay or men who have sex or homosexual* or bisexual* or MSM or queer) and [text terms (mental health or depress* or anxiety or stress* or PTSD) or MeSH terms (Mental Health or PTSD)]. Reference lists of identified literature reviews and systematic reviews were also searched. All searches were conducted on April 6, 2016 and results were limited to English review articles published from 2005 to present in high-income countries. The search yielded 1,224 references from which 56 studies were included. Sample sizes of primary studies ranged from 40 to 4,295.

Rapid Response: Evidence into Action

The OHTN Rapid Response Service offers quick access to research evidence to help inform decision making, service delivery and advocacy. In response to a question from the field, the Rapid Response Team reviews the scientific and grey literature, consults with experts, and prepares a brief fact sheet summarizing the current evidence and its implications for policy and practice.

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