

# ***A Review of Psychosocial Factors that Facilitate HIV Infection among Women Living in Canada & the United States: Implications for Public Health Policy***

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KEYWORDS: WOMEN, HIV, GENDER, PSYCHOSOCIAL, POLICY

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*In Canada and the U.S., HIV infection among women has been associated with mental health symptoms, injection drug use, past trauma history, sexual partner characteristics, gender power inequalities, poverty, racial segregation and health care disparities. The psychosocial needs of women living with HIV often go unmet, facilitating HIV transmission, poor psychiatric outcomes and faster disease progression. Therefore, it is important to understand the complex biological, psychological, social and behavioral factors affecting women living with HIV. This article discusses urban women's health from a biopsychosocial and behavioral perspective as well as the implications for health care policy and practice that are specific to HIV prevention and intervention.*

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In 2008, it was estimated that approximately one million adults in the United States (U.S.) and 65,000 adults in Canada are living with human immunodeficiency virus or acquired immune deficiency syndrome (CDC, 2008a; PHAC, 2009). Moreover, it is estimated that a substantial proportion of people living with HIV in the U.S. (21%) and Canada (27%) are unaware of their HIV status (CDC, 2008a; PHAC, 2009). The rates of new infections in Canada range between 2,300 and

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4,300 each year, while it is estimated to be about 56,000 each year in the U.S. (PHAC, 2009; CDC, 2010a).

Since the beginning of HIV surveillance in Canada and the U.S., men have accounted for most of the HIV/AIDS cases reported (CDC, 2008a; PHAC, 2009). However, among individuals 15-19 years old, young Canadian women represented most (58%) of the positive HIV tests (PHAC, 2009). While men still account for most of the HIV cases in the in the U.S., HIV is the leading cause of death among Black women 25-34 years old (CDC, 2008b).

Among women in Canada and the U.S., ethnic minorities are disproportionately affected by HIV/AIDS. For instance, from 1979 to 2008 aboriginal women accounted for 29% of the reported AIDS cases and Black Canadian women accounted for approximately 35% while representing approximately 2% and 1% of the population, respectively (PHAC, 2009; Statistics Canada, 2010). Similarly, although African American and Hispanic women represent about a quarter of the U.S. female population, the HIV diagnosis rate for African American and Hispanic women as of 2006 was approximately 71% (CDC, 2010b). In Canada and the U.S., most of the new infections found among women are because of high-risk, heterosexual sex, 62% and 80% respectively (PHAC, 2009; CDC, 2008b).

Geographically, HIV/AIDS has affected all regions of developed Northern America; however, most individuals with AIDS reported living in urban areas (i.e., areas with more than 500,000 people; CDC, 2010a; UNAIDS/WHO, 2004). Understanding factors associated with HIV transmission in these densely populated urban areas is needed to curb the incidence of new infections. Women living in urban areas are faced with unique psychosocial needs and challenges. The purpose of this paper is to discuss the biological, psychological, social and behavioral correlates of HIV infection transmitted through heterosexual sex and injection drug use (IDU) among women living in urban areas. We then discuss implications for public health policy in Canada and the U.S. We limit our focus to factors associated with heterosexual sex and IDU because they account for most of the HIV infection in women living in Canada and the U.S.

We assert that public health policy that focuses on HIV prevention and intervention should incorporate an interdisciplinary approach, which we believe will significantly improve health outcomes. Using a biopsychosocial framework, we review the influence of physiological susceptibility to infection, mental health and trauma history, substance use, specific characteristics of intimate partners (e.g., gender and relationship power, sexual networks, sexual behavior), poverty and health care disparities to women's susceptibility to HIV infection.

### ***Heterosexual Sex & Physiological Susceptibility to HIV Infection***

Physiologically women are at risk for acquiring HIV through heterosexual contact because the female genital track is more susceptible to injury during intercourse than the penis, leading to increased opportunities for HIV to enter the bloodstream (McNamara, 2007). Further, certain sexually transmitted infections (STIs) can lead to a breakdown of the vagina's natural defense system and cause physical changes that facilitate HIV transmission and increase a woman's risk of being infected with HIV (Fleming & Wasserheit, 1999; Wasserheit, 1992).

Once a person is infected with HIV, a compromised immune system can lead to an increase in opportunistic infections and facilitate the acquisition of persistent STIs-posing serious health risks (Wasserheit, 1992). Fortunately, there is empirical evidence that indicates the diagnosis and treatment of STIs is an effective strategy for reducing HIV transmission (Laga et al., 1994). Therefore, health care policy that supports early detection and treatment of STIs is an important primary HIV prevention intervention. Additionally, preventing STIs among those already infected with HIV, particularly those who report unprotected sex, is likely to be an effective secondary HIV prevention strategy (Gore-Felton et al., 2003). It is important to note that STIs are significantly higher among ethnic minority populations compared to their Caucasian counterparts. For instance, rates of syphilis and gonorrhea are nearly 30 times higher in African Americans compared to Caucasians (CDC, 2010b). Similarly, in Canada ethnic minorities have a significantly greater STI rate (e.g., Chlamydia) than Caucasians (Marrie et al., 2003), highlighting the need for culturally tailored prevention interventions and that target populations at highest risk for HIV and other STI transmission.

### ***Mental Health, Trauma History & Substance Use***

Although biological factors are an important factor in explaining HIV transmission, it does not solely account for the racial disparity in rates of HIV (Adimora & Schoenbach, 2005). Traumatic experiences and subsequent mental health issues contribute both to the spread and the severity of HIV infection, creating unique challenges for women living in urban environments because of the high rate of trauma exposure. The high rate of exposure to violence and other traumatic experiences among people living in urban communities has been well-established (Adimora & Schoenbach, 2005), resulting in increased rates of trauma-related symptoms including posttraumatic stress disorder (PTSD) (Gore-Felton, Butler & Koopman, 2001). Moreover, individuals with histories of trauma are more likely to report increased rates of sexual and other risk

behavior (Ben-Zur & Zeidner, 2009). Thus, a history of trauma may put an individual at greater risk for HIV transmission through high-risk behaviors such as unprotected sexual intercourse. Interestingly, HIV-positive populations experience higher rates of trauma exposure than the general population (Leserman et al., 2005). Indeed, HIV-infected persons in the U.S. and Canada report alarmingly high rates of childhood physical and sexual abuse as well as sexual assaults after the age of 15 (Brady et al., 2002; Mehrabadi et al., 2008).

Given the rates of historical abuse, it is not surprising that individuals living with HIV also report high rates of PTSD and depression (Gore-Felton, Butler & Koopman, 2001; Whetton et al., 2008). This is problematic because PTSD and depression have been associated with faster HIV disease progression and mortality (Leserman, 2008). This relationship may be mediated by behaviors such as alcohol abuse, drug use and non-adherence to medications (Gore-Felton & Koopman, 2008). Research has demonstrated that in addition to the deleterious health outcomes substance use has on HIV disease, substance use is also associated with risk behaviors that facilitate HIV transmission (Lucas et al., 2002; Webber et al., 1999).

Although heterosexual contact accounts for most of the HIV infection among women in the U.S. and Canada, in Canada a much larger proportion of women (42%) were infected through injection drug use (IDU) (PHAC, 2009) compared to 19% of newly diagnosed women in America (CDC, 2008d). In Canada, aboriginal persons are overrepresented among IDUs; hence, more Canadian aboriginals are becoming infected with HIV (Wardman, Quantz & Clement, 2006). Craib et al. (2003) found that Canadian aboriginal IDUs are twice as likely to become infected with HIV compared to non-aboriginal IDUs. Furthermore, aboriginal women who are IDUs are becoming infected not only through injecting drugs themselves but also through sexual intercourse with partners who are IDUs (Spittal et al., 2002).

### *Intimate Partner Characteristics*

Women in urban communities are often at increased risk of contracting HIV because of characteristics and circumstances that are unique to their sexual partners. The high rates of HIV found in ethnic minority women are associated with gender and power in relationships, substance use, a lack of ethnic mixing for sexual partner choice, concurrent relationships and incarceration history (Abiona et al., 2009; Adimora & Schoenbach, 2002; Adimora, Schoenbach & Floris-Moore, 2009; Morrow, 2009; Tillerson, 2008).

Relationship power has been associated with women's ability to negotiate condom use (Pulerwitz, Gortmaker & DeJong, 2000) and avoid sexual behaviors that may place them at risk for HIV infection (Amaro,

1995). Moreover, fear of relationship conflict and in some circumstance violence may prevent women from initiating condom negotiation (Fullilove et al., 1990). These findings can be understood from the perspective of the Theory of Gender and Power which asserts that men's dominant status in society facilitates gender inequalities at the societal and individual level resulting in cultural norms that influence actions that maintain the gender imbalance (Connell, 1987). This has implications for HIV infection because in romantic relationships this imbalance of power can manifest as a lack of power among women to have control over when condoms are used (Wingood & DiClemente, 1998). Low relationship power has been associated with physical violence, forced sex and inconsistent condom use (Pulerwitz, Gortmaker & DeJong, 1990) all of which have been associated with increased risk of HIV infection. On a societal level, gender inequalities results in labor and economic imbalances with more women living in poverty.

As previously noted, substance use among women's sexual partners is a contributory factor to women's HIV infection rate in both the U.S. and Canada. Holmberg (1996) conducted a survey in 96 urban cities in the U.S. and estimated that there were approximately a total of 1.46 million injection drug users and 204,000 were living with HIV, suggesting that for every 100 injection drug users living in urban areas approximately two are living with HIV. Injection drug use has also been associated with greater numbers of recent sexual partners (Zapata et al., 2008), providing multiple potential vectors for the spread of HIV (Spittal et al., 2002).

In addition to substance use, sexual behavior through networks is associated with women's HIV risk. Core group theory postulates that a small subset (i.e., core) of the population have high levels of risk behavior and long periods of infectiousness, thereby contributing disproportionately to the transmission of STIs and HIV (Jolly & Wylie, 2002). African Americans tend to choose sexual partners from their own ethnic group at higher rates compared to other racial and ethnic groups (Laumann & Youm, 1999). Moreover, non-core (i.e., those with few sexual partners) African Americans are more likely to have sex with a core group member compared to other racial and ethnic groups (Adimora & Schoenbach, 2005). The behavioral patterns of remaining sexually active within one's own ethnic sexual network and maintaining sexual contact with core members provide further opportunity for the spread of STIs and HIV. Thus, a complex epidemiological pattern emerges wherein the interaction between individual sexual behavior and societal factors increases the likelihood that African Americans will acquire HIV and other STIs.

Type of sexual relationships also confers risk, particularly concurrent relationships. Concurrent sexual relationships are

characterized by sexual relationships that overlap in time. Importantly, concurrent sexual relationships are particularly efficient in spreading STIs and HIV because in addition to higher numbers of individuals being infected simultaneously, there is faster dissemination of infection through a sexual network compared to infections spread through new, sequential sexual partners (Adimora, Schoenbach & Doherty, 2007). A national survey study among over 10,000 women found that concurrency was highest among women who were not married with varying rates among African American (21%), Caucasian (11%), Hispanic (8%) and Asian American and Pacific Islander (6%) women (Adimora et al., 2002). It has been asserted that serial monogamous relationships combined with high rates of concurrent sexual relationships among African Americans account for the racial/ethnic disparity found in HIV prevalence rates (Adimora et al., 2002).

In the U.S., institutional racism, drug policies and historical trauma have been associated with greater incarceration rates among ethnic minorities (Johnson & Raphael, 2009). This is important for women's health because there is evidence indicating that higher incarceration rates among Black males account for most of the racial disparity in AIDS infection among women in the U.S. (Johnson & Raphael, 2009). In comparison to the general population, people who are incarcerated are three and a half times more likely to have AIDS (Maruschack, 2004). Furthermore, Hispanic inmates in the U.S. are more than three times as likely to be HIV infected compared to Caucasian inmates and African American male inmates are two times more likely to be HIV-positive compared to their Caucasian counterparts (Maruschack, 2004). This is particularly concerning for women in urban areas because once HIV-positive prisoners are released and reintegrate back into society, they return home, placing their sexual partners at a greater risk for HIV infection.

### *Poverty, Racial Segregation & Access to Medical Care*

Residential segregation by race is common in urban communities (Adimora et al., 2006) and may be a critical factor in the structure of sexual networks (Zenilman et al., 1999). As previously noted, in contrast to rural and suburban communities, urban communities have a disproportionate number of residents who are HIV positive. This is particularly true for people in west coast cities such as San Francisco, Los Angeles and Vancouver and northeast cities such as New York City, Washington, D.C. and Montreal (CDC, 2008c; UNAIDS/WHO, 2004). More specifically, people living in certain low socioeconomic neighborhoods tend to be more affected by transmission of HIV than other neighborhoods in the same city. This may be explained by the fact that individuals tend to choose sexual partners who are similar to them

(e.g., live in the same area, engage in similar risk behavior; Laumann & Michael, 2001).

While there has been a dearth of research assessing the risk factors associated with Canadian aboriginal women becoming infected with HIV, it is clear that aboriginal women are more likely to live in poverty compared to non-aboriginal women (Lee, 2000). Structural and systemic discrimination facilitates poverty through geographic segregation among certain groups of people. For geographic areas that have high HIV prevalence, sexual networks and residential segregation become pathways that facilitate increased HIV transmission by restricting the number of non-HIV infected partners available to any one person. Poverty restricts one's ability to travel outside of densely infected regions for sexual partners (e.g., due to the expense of travel, lack of convenient transportation). Also, poverty among women often reduces the ability to leave a high-risk relationship, particularly if the relationship provides financial support (Crepaz et al., 2009).

Poverty and discrimination are also related to decreased access to health care in developed North America. In Canada, even though health care is universal to its citizens, HIV services are less accessible in Black Canadian neighborhoods and in low socioeconomic neighborhoods (Kaukinen & Fulcher, 2006). People living in the lowest socioeconomic neighborhoods, compared to people in the highest socioeconomic neighborhoods, are 40% less likely to have had an HIV test (Singh-Setia et al., 2009). This difference may be associated with greater social stigma, fewer HIV services, or difficulty accessing care because of lack of a regular medical provider in poorer neighborhoods (Kaukinen & Fulcher, 2006; Singh-Setia et al., 2009). In contrast, people who are poor in the U.S. often lack health care access because they are uninsured and underinsured. Furthermore, since the U.S. is currently in an economic recession, state government HIV program funding has been substantially decreased or cut from the budget (The White House Office of National AIDS Policy, 2010). This is problematic because not having access to health care services is associated with STIs that go undiagnosed, thus worsening the progression of otherwise treatable STIs, which in turn creates a biological context that facilitates the transmission of HIV (Gore-Felton et al., 2003).

## **POLICY IMPLICATIONS**

Taken altogether, there is a synergistic effect of biological, psychological, social and behavioral factors contributing to disproportionate HIV/AIDS rates among women living in urban areas. These factors have significant implications for public health care policy that, if enacted, could make a significant impact on reducing the

morbidity and mortality associated with HIV/AIDS. In the U.S., The Affordable Care Act was signed into law by President Obama in March 2010. This new law proposes to provide health insurance coverage to all Americans by the year 2014. It is anticipated that approximately 32 million Americans will benefit from this healthcare insurance expansion (DHHS, 2010). While this is encouraging and will undoubtedly ameliorate some of the health disparity that is found among the poor and women, universal healthcare is available in Canada and yet there remain gender and ethnic differences in usage which is not fully understood. Similar to Canada, the U.S. will likely face the challenge of getting those who have historically not accessed care to do so.

#### *Improving Accessibility & Treatment*

Universal healthcare enables individuals to engage in preventive care and early treatment. The Affordable Care Act is poised to do that by stopping insurance companies from denying pre-existing conditions and will prevent lifetime limits on insurance benefits (DHHS; 2010). Now that the Affordable Care Act prevents insurance companies from denying coverage for HIV-related treatment because it is a pre-existing condition, we expect that this will ease the financial strain and burden of healthcare expenses on low-income women. In the November 2010 U.S. elections conservative were won the majority of congressional seats and voiced a desire to repeal much of the healthcare form act. As health care reform currently gets underway and is debated in the U.S., it will be important to impress upon government officials such as local legislators or representatives the critical need to expand insurance coverage to include HIV treatment and care coverage.

An important aspect of the new Act is a focus on prevention and wellness that will expand outreach efforts to at-risk communities. Moreover, the Act acknowledges the need to strengthen cultural competency training for all healthcare providers in an effort to reduce health disparities among ethnic minority populations (DHHS, 2010).

Incorporating testing and treatment of HIV and STIs into regular medical exams is likely to reduce the stigma associated with specialized STI clinics. There is not a legitimate medical reason why these tests need to be separate from other types of lab tests, which are performed regularly on sexually active women. In urban areas that have significant HIV rates, HIV testing ought to be implemented as part of a public health campaign to reduce HIV transmission and get those who test positive into treatment early. Indeed, the National HIV/AIDS Strategy for the United States (The White House Office of National AIDS Policy, 2010), recommends that in order to reduce the number of people infected with HIV, prevention and testing services need to target high-risk populations (i.e., African Americans, substance users) and they need be



performed in locations where there are many people living with HIV. The urgency of comprehensive testing and treatment cannot be overstated, particularly for impoverished women living in urban areas. Antiretroviral therapy can lower viral load and reduce infectiousness, thereby reducing transmission and arguably lowering HIV incidence rates (Kalichman et al., 2010). Moreover, prior research indicates that when individuals become aware of their positive serostatus, they reduce risk behavior (Crepaz & Marks, 2002; Kalichman, Rompa & Cage, 2000; Rotheram-Borus et al., 2001). Since some people are unaware of their serostatus, The Strategy set a goal to increase people's awareness of their HIV status from 79% to 90% (The White House Office of National AIDS Policy, 2010).

In prisons and jails, needle-exchange programs need to be implemented and condoms need to be distributed to the inmates as a preventive measure against HIV. Currently, in developed North America, there are no needle-exchange programs for inmates. In Canada, condoms are available in federal prisons but not in many of the provincial or territorial prisons. Unfortunately, in the U.S., a majority of prisons and jails do not legally allow condoms in their facilities. American policy makers are operating under the law that it is illegal to have sexual intercourse in prisons and jails; therefore, inmates do not need access to condoms.

Moreover, mandated HIV testing should be extended to incarcerated populations. Individuals should also be tested for HIV upon release from prison or jail. For women, this might be a particularly effective prevention strategy because while men might not discuss their HIV status with their sexual partners, they might be more likely to use protection if they knew they were HIV positive.

#### *Integrating Health Care & Social Services to Improve Health Outcomes*

Given the co-morbidity of substance abuse with other mental health conditions such as depression and PTSD (Currie et al., 2005; Jacobsen, Southwick & Kosten, 2001) and the prevalence of those mental health conditions in people living with HIV (Gaynes et al., 2008; Mackesy-Amity, Fendrich & Johnson, 2010; Pence et al., 2006) it should be standard-of-care practice to assess for substance abuse and mental health disorders among HIV-positive persons. Policies that incentivize interdisciplinary medical practices that include mental health and substance treatment, particularly medical practices in densely populated areas with high HIV prevalence, may prove highly efficient in identifying high-risk individuals early and thereby prevent HIV infection or begin treatment early for those already infected.

In the U.S., insurance carriers should recognize mental health and substance use treatment as a medical necessity and reimburse these

expenses as they would for any other medical condition. It is not clear how the Affordable Care Act will affect these types of reimbursement issues. However, prevention services could be incentivized by reimbursing medical and other health care providers at rates comparative to other primary care medical procedures.

In contrast, even though Canada has universal health care, their anti-drug law does not support the harm-reduction model as a substance use treatment modality. Thus, health care policy needs to be changed so that the Canadian government financially supports treatment facilities that implement harm-reduction techniques. Furthermore, there are often long wait lists for abstinence-only substance use programs. Treatment options need to be easily and immediately available regardless of gender, education level and socioeconomic status.

#### *Encouraging Safer Individual & Dyadic Practices*

Gender power imbalance is a societal construct that will take more than healthcare reform to change. Poverty and economic disadvantage based on gender requires a multifaceted approach that facilitates equitable labor, income and power at all levels of society. Initiatives that use public health messages to influence normative, gendered beliefs about condom use that encourages equality in condom decision-making are needed. HIV prevention interventions that target gender imbalance using individual, group, community and policy approaches are likely to have a significant influence on changing gender norms related to safer sex. Peer-led interventions may be a particularly effective strategy to influence gender norms. Given the prominence of partner characteristics in facilitating the spread of HIV/AIDS, prevention and intervention efforts need to target couples and sexual networks. Couples-based HIV testing and counseling has proven efficacious in reducing incidence of unsafe sexual behaviors (Coates et al., 2000; El-Bassel et al., 2005) and may help to prevent the spread of HIV in communities where core sexual networks promote rapid dissemination of the disease.

#### *Tailoring Public Policy to Community Factors*

The influence of poverty on women's health cannot be understated. Poverty is associated with all facets of health or lack thereof. Health policies need to be tailored to the needs of the community. In poor communities, organizations ought to supply free condoms and provide needle exchange for injection drug users. Moreover, services need to minimize the challenges of transportation—mobile health vans may be a viable option. Also, minimizing the number of health visits by incorporating linkages to preventive services within medical care may reduce barriers to accessing care.

Finally, public health policies need to be guided by the epidemiological, cultural, societal, psychological and economical needs of the geographic region they serve. This necessitates an interdisciplinary approach to healthcare that focuses on the whole person from a biopsychosocial framework. Culturally competent care will necessarily be at the forefront of health services as health disparities continue and the populations in Canada and the U.S. continues to become more diverse. It will be important to recruit and train more women and ethnic minorities into healthcare positions so that when the poor, women, or minorities do access care they will experience care that is relevant to their life experience--resulting in improved public health for women and the communities they live in.

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