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Macro-Level Approaches to HIV Prevention Among Ethnic Minority Youth:

State of the Science, Opportunities, and Challenges

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Abstract

The HIV epidemic continues to disproportionately affect ethnic minority youth. These disconcerting health disparities indicate that although existing HIV preventive strategies for ethnic minority youth have been efficacious, they have not significantly reduced the impact of the epidemic in this population. Macro-level interventions, such as structural or policy interventions, have the potential to impact the HIV epidemic at a population level, and thus reduce the HIV health disparities that exist among ethnic minority youth and other segments of the U.S. population. This article calls for a paradigm shift to develop, evaluate, and disseminate interventions that target upstream/macro-level factors or that, at a minimum, integrate both a macro and individual level perspective. The article also discusses the challenges in developing and evaluating such interventions. Psychologists and other behavioral scientists can play a critical role in reducing the impact of HIV on ethnic minority youth by integrating macro-level approaches to future HIV prevention strategies.

Keywords

HIV prevention; ethnic minorities; youth; macro-level interventions

The number of people living in the United States with HIV is at its highest since the epidemic began to be recognized in 1981. The Centers for Disease Control and Prevention (CDC) estimates that 1.1 million people in the United States have been diagnosed with

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AIDS, with an additional 1.2 million people thought to be living with HIV, the precursor to AIDS. Given that HIV infection is a chronic illness and no longer viewed as a “death sentence,” individual perceptions, particularly among ethnic minority populations, on the severity of HIV are changing (Demmer, 2002). Specifically, HIV is not viewed as seriously as it was before the introduction of highly active antiretroviral therapy (HAART). Moreover, the availability of HAART and postexposure prophylaxis, as well as the recent evidence demonstrating the effectiveness of preexposure prophylaxis (PrEP) as an HIV prevention strategy (CDC, 2011a), may lead to an increase in unsafe sexual behavior practices (Siegel & Lekas, 2002), particularly among young people and ethnic minority populations. For example, Demmer (2002) found that inner city Hispanics/Latinos and African Americans were about 25% more likely to engage in unsafe sex in the HAART era.

Adolescents and young adults continue to be disproportionately affected by HIV. National statistics estimate that almost 40% of new HIV cases occur in youth aged 13–29 years (CDC, 2011b). Within this age group, men who have sex with men (MSM), especially African American and Hispanic/Latino MSM, and youth of all ethnic minority groups are disproportionately affected. For example, young, African American MSM were the only group that experienced a statistically significant increase in HIV incidence from 2006 to 2009 (CDC, 2011b). Therefore, a focus on preventing HIV/AIDS among ethnic minority adolescents and young adults is warranted.

Research indicates that health disparities, such as the ones noted above, are influenced by a broad number of factors, including biological, genetic, individual, interpersonal, social, and economic determinants. Each of these influencing factors provides opportunities for prevention. However, without an effective vaccination and with the knowledge of the behavioral factors responsible for HIV transmission, it is not at all surprising that HIV preventive interventions for young people have primarily focused on targeting individual-level health behaviors and individual-level determinants. The individual-level focus targets reducing risky behaviors that are most proximally tied to transmission, such as unprotected sex and needle sharing. While the study of the biology of HIV has led to our knowledge of transmission pathways, significantly fewer interventions have targeted broader social, structural, organizational, and economic factors that require intervention to impact HIV at a population level. Socioeconomic status (SES), limited or lack of access to quality health care and quality education, and institutionalized discrimination, to name a few, are macro social/structural factors that potentially contribute to the HIV epidemic and that need to be targeted to reduce HIV at a population level. In this article, we argue that behavioral interventions that target risky sexual behavior and needle sharing at the individual level are insufficient strategies to decrease the incidence and prevalence of HIV/AIDS in ethnic minority youth.

The principal assumption for the prevention of HIV infection and transmission among youth has focused on individual-level risk-taking behaviors, based upon population categories identified as the primary transmission groups, such as MSM. As such, HIV prevention interventions have been framed from behavioral theories that rely on individual-level factors such as motivation, self-efficacy, and behavioral skills (e.g., Bandura, 1977; Fishbein & Ajzen, 1975; Fisher & Fisher, 1992; Koniak-Griffin et al., 2003, 2008; Prochaska & DiClemente, 1983). These interventions often address youth’s perceptions of their ability

(e.g., self-efficacy) to change their behavior, their motivations for doing so, and the learning of specific skills for behavior change (e.g., how to ask a partner to use a condom, how to put on a condom, etc.). Prevention strategies for reducing HIV transmission have, therefore, targeted change in individual-level behaviors.

We propose a paradigm shift in the approach of scientists who focus on developing, evaluating, and implementing HIV preventive interventions from a predominantly individual perspective to one where psychologists play a critical role that integrates an upstream or macro-level perspective. The intent of this article is to stimulate thought, discussion, and research in the expansion of HIV prevention practice through adoption of a macro-level approach to HIV with the ultimate goal of reducing the incidence and prevalence of HIV among young people, especially young people disproportionately impacted.

In this article, we first review HIV incidence rates among ethnic minority adolescents/young adults and discuss the determinants associated with HIV in this population. We then review the evidence suggesting that macro-level determinants, including poverty, stigma and discrimination, and lack of health care, are associated with HIV; provide a critical analysis of interventions that target macro-level determinants found to be related to HIV and/or HIV risk factors; and show how macro-level interventions can complement those focused solely on individual-level factors. Finally, we conclude with a discussion on the role of psychologists in maximizing the effects of existing individual-level interventions and how they can apply and improve the proposed expanded strategy to target the prevention of HIV infections in ethnic minority adolescent populations.

HIV Incidence in Ethnic Minority Adolescents and Young Adults

More than 30 years after the first cases of AIDS were reported, there are still approximately 50,000 new HIV infections every year. Close to half (40%) of new cases are among young people aged 15 to 29, and while all ethnic groups are affected by HIV, clear health inequities exist. For example, in 2009, African Americans accounted for 65% of HIV infection diagnosis among individuals aged 13 to 24 (CDC, 2011b). The racial/ethnic differences are equally disconcerting among MSM. For example, in 2009, the number of new HIV infections among African American MSM ages 13 to 29 exceeded the number of new HIV infections among White MSM ages 13 to 29 and ages 30 to 39 combined (CDC, 2011c). Within this subgroup, African American MSM aged 13 to 29 account for approximately 60% of the estimated 10,800 new HIV infections in African American MSM every year. Moreover, the CDC estimates that the proportion of new HIV infections among young African American MSM increased by an alarming 48% from 2006 to 2009 (CDC, 2011c). Young African American MSM were the only race and risk group with a statistically significant increase in this time period. Compared to non-Hispanic/Latino Whites, Hispanics/Latinos were also disproportionately affected by HIV, albeit not to the degree that African Americans were. For example, Hispanics/Latinos accounted for 20% of all new HIV infections in 2009, although they accounted for 16% of the U.S. population. Among Hispanics/Latinos, MSM, and especially young MSM, were particularly affected. For example, Hispanic/Latino MSM ages 13 to 29 accounted for more new HIV infections among Hispanic/Latino MSM than any other Hispanic/Latino MSM age group. Surveillance

data indicated that 45% of the 6,000 HIV infections among Hispanic/Latino MSM were in youth ages 13 to 29 (CDC, 2011d).

Although the number of HIV cases among ethnic minority adolescent and adult females has either decreased or remained stable since 2007 (CDC, 2012a), gender disparities exist. In fact, for purely biological reasons, women are more than twice as likely as men to acquire HIV during unprotected vaginal sex with an infected partner (Boily et al., 2009). The majority (92%) of diagnoses of HIV transmission among adolescent females were attributed to heterosexual contact (CDC, 2012b). Adolescent and young minority women are particularly disproportionately affected by HIV. For example, African American women and Hispanic/Latina females ages 13 to 24 accounted for 82% of all reported HIV infections among women in this age group (CDC, 2012c). African American and Hispanic/Latina women are also at increased risk for sexually transmitted infections, compared to their male counterparts, and thus at higher risk for HIV infection. For example, the chlamydia rate among young African American women aged 15–19 years was 6.6 times the rate among White women in the same age group. In summary, the incidence of HIV among African Americans and Hispanics/Latinos, and particularly African American and Hispanic/Latino young MSM and African American and Latina women, is disproportionately high.

Determinants Associated With HIV in Minority Youth

The disproportionately high prevalence and incidence rates of HIV infection across ethnic and age groups, and particularly ethnic minority youth and young MSM, suggest that existing HIV prevention strategies for these populations, while efficacious, are insufficient. An additional, more holistic, approach to HIV prevention among youth can complement the progress that has already been made. To identify, develop, and evaluate innovative, macro-level HIV prevention strategies for youth, it is important to first understand the HIV epidemic through a multisystemic lens. Due to the presence of risks/determinants at multiple levels of the social environment and the potential for these risks to compound one another's effects, there is a need for multidimensional understandings of risk and protection vis-à-vis HIV infection in adolescents. This way of looking at HIV among youth is certainly not novel. In fact, psychologists, epidemiologists, and other behavioral scientists have studied determinants associated with HIV infection from a multisystemic perspective in both adolescent and adult populations (Díaz, Ayala, & Bein, 2004; Morales, 2009; Organista et al., 2012). However, the field has not adopted these findings or integrated them sufficiently into HIV prevention approaches that lead to reductions in HIV health disparities.

The focus of changing behavior at the individual level may be due to the fact that most theoretical frameworks used in the HIV prevention field are individually focused. For example, the health belief model, the theory of reasoned action, social-cognitive theory, and the information-motivation-behavioral skills model all target individual-level behavior change. However, it is important to utilize theoretical frameworks that also take into account socio-cultural context and other macro-level factors. For example, although motivation has been found to be associated with behavior change (Kalichman et al., 2002), it is likely that motivation may be predicted by a macro-level factor such as social norms (Traube, Holloway, & Smith, 2011). Thus, existing individual-level frameworks may result in a low

percentage of the variability in the outcome of interest being explained. Theoretical frameworks that have been empirically evaluated and take into account the sociocultural context, such as social action theory (Traube et al., 2011), ecodevelopmental theory (Szapocznik & Coatsworth, 1999), and intersectionality theory (Bowleg, 2012), should be used when considering HIV preventive interventions that target factors above and beyond individual-level ones.

Ecological Systems Theory

Bronfenbrenner's (1979) ecological systems theory provides a useful framework from which to multidimensionally examine the macro-level factors associated with the HIV epidemic among young people. As in adults, HIV infection among youth, including ethnic minority youth, is influenced by a broad number of factors, including biological, genetic, individual, interpersonal (including family and peer), as well as social and economic determinants. These determinants can be mapped onto Bronfenbrenner's four subsystems that explain the multiple influences on adolescent development according to their proximity: *macrosystems*—the broad social and philosophical ideals that define a particular culture (e.g., cultural values); *exosystems*—contexts in which the adolescent does not participate directly but that impact the functioning of important persons in the adolescent's life (e.g., parents' support system); *mesosystems*—contexts that comprise the interactions between important persons in the different contexts in which the adolescent participates directly (e.g., parental monitoring of peers); *microsystems*—contexts in which the adolescent participates directly (e.g., family); and interpersonal psychological or cognitive factors such as knowledge and beliefs. Given the present article's emphasis on macro-level factors, we focus on interventions originating in the macrosystem or targeting macrosystem processes or factors.

Components of the macrosystem include cultural and societal values, gender norms, bodies of knowledge, customs, material resources, opportunity structures, potential life-course trajectories, and the economic stability of the country in which one lives (Bronfenbrenner, 1979, 1989). Embedded within the cultural and social context are a myriad of factors that contribute to young people's vulnerability to HIV infection and its extant health disparities. Macro-level determinants of adolescent HIV risk include stigma and discrimination, access to quality preventive and educational services and programs, residential segregation, national economic stability, and socioeconomic factors. Additionally, gender norms constitute another important macro-level factor that influences HIV infection (Laub, Somera, Gowen, & Diaz, 1999). We propose that these macro-level characteristics can elevate risk for both precipitating risky sexual behaviors and deterring the use of testing services. Below, we discuss the evidence involving mediational pathways to these behavioral outcomes. To understand the mediational pathways from macro-level determinants to behavioral outcomes, such as unsafe sexual behavior, it is important to understand frameworks, such as ecodevelopmental theory (Szapocznik & Coatsworth, 1999), that describe the influence of macro-level determinants on individual-level behaviors.

Ecodevelopmental Theory

Ecodevelopmental theory (Szapocznik & Coatsworth, 1999), an extension of Bronfenbrenner's work on the social ecology (Bronfenbrenner, 1979, 1986), is a theoretical

framework that can be used to illustrate how macro-level determinants can have an indirect effect on individual-level characteristics. For example, one of the key elements of ecodevelopmental theory is social interactions. Ecodevelopmental theory postulates that risk and protection are expressed in the patterns of relationships and direct transactions between individuals within and across different contextual levels, including macrosystemic levels (Szapocznik & Coatsworth, 1999). For example, in the case of Hispanic/Latino immigrant youth, ecodevelopmental theory suggests that macrosystemic phenomena, such as the mismatch between a family's culture of origin and that of the host country, produce a "trickle-down" effect by contributing to exosystemic problems such as parental isolation, which in turn may cut parents off from their adolescents' peer networks (i.e., mesosystemic problems; Pantin, Schwartz, Sullivan, Prado, & Szapocznik, 2004). Clinical literature suggests that when immigrant parents are unfamiliar with the culture of their new homeland, they tend to remain isolated and to not reach out for social support (Leon & Dziegielewski, 2000). Lack of social support, in turn, may inhibit supportive and involved parenting (Simons, Beaman, Rand, & Chao, 1993). Lack of parental involvement in the adolescent's peer world (mesosystemic problem) then increases the likelihood that youth will engage in HIV risk behaviors (Boyer, Tschann, & Shafer, 1999; Luster & Small, 1994). Prado and colleagues (2010) showed that macro-level determinants of health, such as culture, had an indirect effect on Hispanic/Latino adolescent HIV risk behaviors through their effect on parental stressors, parental social support, family functioning, school functioning, and peer sexual behavior. Thus, macro-level factors have a direct or an indirect impact on HIV risk behaviors and HIV infection and deserve greater attention if we are to more fully understand how to best intervene in HIV transmission.

Intersectionality Theory

Although there are established theoretical frameworks (e.g., the theory of reasoned action, the health belief model) that have been used to guide the development of individual-level HIV preventive interventions, there are no "standard" theoretical frameworks that currently guide macro-level interventions. One theoretical framework that has received recent attention in the HIV literature is intersectionality theory. Historically used in Black feminist theory, inter-sectionality theory (Bowleg, 2012) is a theoretical framework that explores how micro-social characteristics (e.g., race, ethnicity, gender, sexual orientation, SES, gender) and inequalities at the macro level (e.g., racism, sexism) are mutually constructed and interdependent (Bowleg, 2012; Logie, James, Tharao, & Loutfy, 2011). Because ethnicity, race, sexual orientation, poverty, discrimination, and stigma are at the heart of the HIV epidemic, intersectionality is one framework that has the potential to inform future structural HIV preventive interventions (Bowleg, 2012).

Macro-Level Factors

The influence of macro-level factors on HIV risk is also evidenced by the fact that those disproportionately impacted by HIV report lower engagement in HIV risk behaviors than those not directly impacted by such macro-level factors (CDC, 2011c). Specifically, African American adolescents report higher rates of condom use than their White counterparts (CDC, 2012d) yet have a higher incidence of HIV. Studies that have examined racial/ethnic

differences in HIV sexual risk behaviors and differences among individual-level factors do not explain the continued health disparity in sexually transmitted infection (STI) rates, including HIV (Crosby, Holtgrave, Stall, Peterson, & Shouse, 2007; Ellen, Aral, & Madger, 1998; Hallfors, Iritani, Miller, & Bauer, 2007; Harawa et al., 2004; Ku et al., 2002; Rhodes, Hergenrath, Wilkin, Alegría-Ortega, & Montaña, 2006; Sifakis et al., 2007; Tanfer, Cubbins, & Billy, 1995). These studies suggest that although these youth experience higher rates of HIV and other STIs, they report engaging in the requisite behavioral skills for preventing HIV, and their sexual behavior is comparable to that of other groups. The fact that research demonstrates that those youth from ethnic minority groups with the highest HIV rates have successfully developed these behavioral skills indicates that a major macro-level factor affecting incidence is the prevalence of HIV infection in communities. Because sexual encounters occur much more frequently among individuals of the same race, ethnicity, or social background than among those of different backgrounds, the higher HIV prevalence in ethnic minority communities leads to higher incidence in these communities, even in those who have lower levels of personal risk behavior. For example, in both urban and rural communities, African Americans bear a larger proportion of the HIV burden compared to other ethnic minority groups and hence are more likely to be infected because African Americans are likely to have intimate relations with other African Americans (CDC, 2011c). This is in spite of the fact that individual-level risky behaviors, such as unprotected sex, among African Americans are comparable to and even lower than those of other ethnic groups.

Additionally, macroeconomic and social forces, including poverty, stigma, discrimination, racism, sexism, and homophobia, have been found to underpin the HIV/AIDS epidemic (Adimora & Schoenbach, 2002, 2005; Díaz et al., 2004; Lane et al., 2004; Organista et al., 2012). Targeting these factors can also direct intervention efforts and reduce the incidence of HIV among youth. In the next section, we review some of the macro-level determinants that have been shown to have a direct or indirect impact on the HIV epidemic.

Stigma and Discrimination

Since the first HIV/AIDS cases were reported in the 1981 *Morbidity and Mortality Weekly Report* (CDC, 2001), and the subsequent increase in diagnoses and deaths, HIV/AIDS-related discrimination has had serious consequences at every level of the ecosystem. The ambiguity surrounding the rare “pneumonia” diagnosed in homosexual men in the 1980s perpetuated a rapid surge of fear, anxiety, and stereotyping around the world. Physicians, law enforcement personnel, and school superintendents reflected the public’s pervasive distress by refusing to treat patients with HIV/AIDS, engaging in police brutality toward gay men, and dismissing young people living with HIV/AIDS from school (Comstock, 1991; Klein, Karchner, & O’Connell, 2002). By the end of the decade, the gay community became the poster child for HIV/AIDS and the lynchpin for hate crimes, discriminatory laws, and modern-day homophobia (Herek, 2011; Herek & Capitanio, 1999; Herek, Gillis, & Cogan, 2009). By the mid-1990s, the public’s outcry for the forced quarantining of people living with HIV/AIDS dissipated, but other overt forms of discrimination went on unchecked: People with or suspected of having HIV/AIDS were denied housing and employment, served more stringent sentences, and were banished from social organizations (Stewart,

Cianfrini, & Walker, 2005). Despite the efforts of powerful HIV/AIDS activists and prevention organizations, evidence of socially significant decreases in HIV/AIDS discrimination is scarce (Herek, Capitano, & Widaman, 2002; Nachega et al., 2012; Schuster et al., 2005). HIV/AIDS discrimination and stigma continue to operate at macrosystemic levels and function as a determinant of health that impacts behavior.

Perhaps one of the most widely publicized macro-level determinants of adolescent HIV risk is how social and cultural norms manifest as stigma and discrimination. Generalized stigmatization of chronic disease, sexuality, and drug use, as well as HIV-specific stigma, affect HIV risk and vulnerability. HIV-related stigma refers to prejudice, discounting, discrediting, and discrimination targeted at individuals perceived to be infected with HIV or AIDS (Herek & Capitano, 1999). HIV stigma is not limited by sociodemographic factors and, as a result, can generate mass societal aversion toward marginalized groups of people. Social stigma and cultural taboos regarding HIV and HIV risk behaviors act to increase risk among adolescents by influencing adolescents' HIV knowledge and impeding adolescents' efforts to practice HIV prevention strategies (e.g., condom use, HIV/STD testing; Tinsley, Lees, & Sumartojo, 2004). For example, fear and stigma may make it difficult for some young MSM to be open about same-sex behaviors, which can increase stress and limit social support and consequently increase risk for HIV infection (Carballo-Diéguez, 1989; Rosario, Scrimshaw, & Hunter, 2006). Similarly, stigma and discrimination may lead young MSM to be rejected by their families, which in turn increases the likelihood of their engaging in HIV risk behaviors (Carballo-Diéguez, 1989; Ryan, Huebener, Diaz, & Sanchez, 2010). The stigma associated with HIV and homosexuality compounds the problem because stigma prevents many from getting tested and seeking treatment due to fear of revealing risky behavior or disclosing sexual orientation (CDC, 2011c). Studies have demonstrated that negative attitudes about HIV are related to a lack of testing, lack of treatment knowledge, and lack of HIV/AIDS discussion (Genberg et al., 2009). This results in a lack of information on how to prevent infection and a lack of knowledge about HIV status. Differential experiences and expressions of stigma have also been reported among Hispanics/Latinos living in the United States, particularly among women, youth, and individuals living in migrant communities (Hirsch, Higgins, Bentley, & Nathanson, 2002). The CDC (2011e) reported that Hispanic/Latino *machismo* places a unique emphasis on the belief that HIV is a disease of homosexuality. While MSM are clearly direct targets of HIV-related stigma, individuals who engage in heterosexual relations are also affected by stigma: Conversations regarding HIV risk are not had, the seeking of testing services is delayed, and personal risk is underestimated (CDC, 2011e). Beyond perpetuating misinformation and risky sexual behaviors, the persistence of disease stigmatization and cultural taboos threaten disclosure of HIV status and medication adherence among young people living with HIV (Rao, Kekwaletswe, Hosek, Martinez, & Rodriguez, 2007; Valdiserri, 2002).

Discrimination, defined as prejudicial action or treatment directed at people with or perceived to have HIV (Klein et al., 2002), can be enough to affect health behaviors, including HIV risk behaviors (Parker & Aggleton, 2003). Further, one does not have to be the direct recipient of prejudicial treatment to be affected by its aversive consequences. A growing body of literature evidences that growing up in a discriminatory environment is

associated with lower ratings of self-efficacy, greater psychological distress, and fewer attempts to negotiate safe sex practices or take other preventive actions (e.g., routine HIV/STD testing; Adimora & Schoenbach, 2005; Díaz et al., 2004). For example, African Americans report experiencing racial discrimination more than any other ethnic minority group (Landrine, Klonoff, Corral, Fernandez, & Roesch, 2006) and have a shared experience of historical trauma, not just with slavery but also with sexually transmitted disease and medical research (e.g., the Tuskegee Syphilis Study; Freimuth et al., 2001). While the contribution of historical trauma and other types of discrimination to HIV is impossible to measure, the fact that in 2009, African American adolescents accounted for 73% of HIV cases and only 17% of the U.S. adolescent population (CDC, 2012c) suggests that interventions for this vulnerable group need to address how these cultural and historical experiences affect HIV risk behaviors. Additionally, recent research with lesbian, gay, bisexual, and transgender (LGBT) adolescents suggests that social discrimination contributes to disease risk not only by lowering self-efficacy but also by narrowing the individual's opportunity to reap protective benefits embedded in social and cultural contexts, such as peer connectedness and family relationships (Markham et al., 2010; Ryan et al., 2010). Moreover, there is some evidence that individuals who possess multiple determinants of social discrimination (e.g., LGBT, minority status, and low SES) are significantly less likely to take preventive action, utilize clinical services, and adhere to medical recommendations (Ahmed, Kaplan, Symington, & Kismodi, 2011; Pollini, Blanco, Crump, & Zuniga, 2011). Individuals at higher risk for social discrimination are also more likely to suffer from psychological distress and, consequently, are more likely to engage in high-risk sexual behavior practices (Díaz et al., 2004; Organista et al., 2012). Finally, the clustering of risk factors associated with discrimination has extremely troubling implications for youth with, or at risk for, HIV/AIDS. Darrow, Montanea, and Gladwin (2009) found that African American, Caribbean, Haitian, and Hispanic/Latino young adults living in a pro-stigmatizing environment were significantly less likely to be tested for HIV and to participate in community mobilization efforts, despite perceiving themselves at higher risk. Taken together, these trends and findings call for structural–environmental interventions to address social stigma and discrimination at a societal level (Organista et al., 2012). Such interventions have the potential to reduce HIV infection by targeting environmental (e.g., discrimination), individual (e.g., psychological distress), and HIV sexual risk behaviors (Organista et al., 2012).

The marginalization of gay youth promotes HIV infection and transmission at the macrosystemic level. Gay youth marginalization takes place across both majority and minority groups. For example, among ethnic minorities, African Americans and Asian Americans historically demonstrate relatively conservative attitudes toward homosexuality (Ahrold & Meston, 2010). Moreover, homophobia and homonegativity have been translated into laws that restrict the sexual behavior and relationships (e.g., marriage) of this group. This societal marginalization and exclusion create the stigma and discrimination that can force youth to not publicly identify as gay and, as a result, miss important prevention messages (Yon-Leau & Muñoz-Laboy, 2010). Stigma and internalized homophobia have been associated with higher rates of unprotected sexual intercourse (Preston et al., 2004; Radcliffe et al., 2010; Ross, Rosser, & Neumaier, 2008). The consequences of HIV/AIDS

discrimination are many: apprehension toward HIV-testing, low participation in HIV/AIDS prevention campaigns, and an array of mental health problems (Herek & Capitanio, 1997; Paz-Bailey et al., 2012; Pollini et al., 2011). Addressing HIV stigma within specific sociocultural contexts has far-reaching implications for preventing HIV risk behaviors and dispelling deleterious attitudes and beliefs.

Socioeconomic Factors

Poverty, lower educational attainment, and limited access to health care in Hispanic/Latino and African American communities limit access to HIV prevention services such as HIV testing and adequate treatment (CDC, 2011b). The literature describes a “nexus of risk” in which social disadvantage factors such as poverty, incarceration experiences, drug use, and lack of social support interact to increase HIV risk behaviors among those who are most vulnerable (German & Latkin, 2012). For instance, results from the 2011 Youth Risk Behavior Surveillance System show that African American female youth in the general population outpace their male counterparts in accessing HIV testing services (CDC, 2012d). However, the relationship is reversed among low-SES youth; African American boys enrolled in a free-lunch program more readily accessed HIV testing services than did African American girls enrolled in the program (Swenson et al., 2009).

Emerging data suggest that HIV prevalence is higher among people who are poor (Denning & DiNenno, 2010). The pathway between poverty and HIV infection may be explained in part by decreased access to care and reduced treatment for HIV and other STIs (Aral, 1999; Mays, Cochran, & Zamudio, 2004). For example, impoverished individuals living in underserved areas may test later in the course of HIV disease and access treatment services more irregularly, thereby increasing the cumulative viral load of positive testers and of the communities to which they return (Das et al., 2010; Wilson, Law, Frulich, Cooper, & Kaldor, 2008). Preventive education and intervention do not always reach populations most needing services. For example, MSM, a population with high risk and high need for intervention, may be at risk because effective HIV interventions or prevention education are not accessible to them. Indeed, a CDC study of MSM in 15 cities found that an astounding 80% had not been reached in the past year by HIV interventions known to be most effective (CDC, 2011d). Additionally, research indicates a lack of knowledge among poor African Americans with regard to HIV status. While one in five adults and adolescents in the United States are unaware of their HIV infection status, the undiagnosed infection rate among African American men is nine times that of White men; and the undiagnosed infection rate among Hispanics/Latinos is three times that of White men (CDC, 2011b). Also, poor Hispanics/Latinos and Hispanic/Latino undocumented immigrants may have limited access to programs and testing because of their fear of institutions, fear of deportation, and language barriers.

Social Instability

The epidemiology of illicit drug use in the community, the ratio of men to women, and racial segregation have been found to influence sexual behavior both directly and indirectly through various mechanisms, such as the destabilization of partnering patterns (Adimora & Schoenbach, 2005) and relationships (Mays et al., 2004). The destabilization of partnering

patterns is associated with a justice system that disproportionately imprisons ethnic minority youth. African American and Hispanic/Latino youth not only demonstrate the highest HIV prevalence rates but are also disproportionately represented in the justice system in the United States. The disproportionate imprisonment of African Americans and Hispanics/Latinos is the result of a war on drugs that has targeted people of color (Fellner, 2000). Also, pervasive racial/ethnic differences in sentencing for convictions of people of color results in longer sentences, in more secure settings (e.g., prison vs. jail; Kansal & Mauer, 2005). “High incarceration rates disrupt sexual partnerships and stable families, impoverish individuals and communities, and alter the ratio of men to women that, together, help drive sexual network patterns, and ultimately increase the vulnerability of communities and individuals to HIV infection” (Adimora & Auerbach, 2010, p. S133). Additionally, incarceration places youth at risk since HIV cases in prisons are five to seven times the number in the general population; imprisoned youth are also more likely to engage in risk behaviors that lead to HIV (Teplin, Mericle, McClelland & Abram, 2003). There is a great need to address these macro-level factors if we are to effectively prevent HIV infection and transmission.

Macro-Level Factors and Sexual Initiation

Macro-level factors influence sexual behaviors, including those that are related to increased risk for HIV infection and transmission. The literature on sexual initiation suggests that social/structural factors (Wu & Thomson, 2001), including economic factors such as SES (Duncan & Brooks-Gunn, 1997; Haveman & Wolfe, 1994) and geographic factors such as neighborhood structure and community dynamics, partially explain racial/ethnic differences in sexual initiation. For young women, the psychological stress from coping with lower SES may result in the prioritizing of intimacy in relationships over protective behaviors, such as delaying engagement in sexual behavior (Kerrigan et al., 2007). Further, Browning, Leventhal, and Brooks-Gunn (2004) concluded that “socioeconomic features of the neighborhood context play a consequential role in the unfolding sexual trajectories of urban adolescents” (p. 40; Browning, Burrington, Leventhal, & Brooks-Gunn, 2008). Further, Aronowitz and colleagues (2006) found that the attitudes adolescent girls adopted as a result of exposure to community influences predicted subsequent risk-taking behaviors such as early sexual initiation. Consequently, economic, geographic, and cultural social/structural factors such as SES, neighborhood structure and dynamics, and exposure to sexuality in the community are important influences that might begin to explain the sexual initiation of youth.

Macro-Level Factors and Established Sexual Behavior

While the research examining macro factors in sexual initiation is emerging, a number of studies have also examined the relationship between macro-level factors and established sexual behavior. This literature suggests that macro-level factors can increase behavioral risk for HIV or serve as protective factors that increase safe sexual practices and behaviors. When examining economic macro-level factors, one study found that income inequality and social capital were significantly correlated with AIDS case rates (Holtgrave & Crosby, 2003). In addition, the evidence for geographical factors is emerging as recent studies on social networks of African American youth indicate that low-risk women may be exposed to

STI infection through sexual linkage to a higher risk group (Fichtenberg et al., 2009). This emerging literature on economic, geographic, and structural factors and established sexual behaviors demonstrates that these factors are important. They can make a contribution to our understanding of how to prevent HIV among youth.

Critical Overview of Evidence-Based Interventions for Ethnic Minority Youth

Individual-Level Interventions

Although determinants of HIV and HIV risk behaviors among adolescents occur at multiple levels of the social ecology, a significant proportion of HIV preventive interventions for ethnic minority youth are individually focused and target risk and protective factors at the individual level. For example, ¡Cuidate! (Take Care of Yourself), an evidence-based HIV preventive intervention for Hispanic/Latino youth, targets attitudes and knowledge about HIV and safe sexual behavior practices, increasing self-efficacy and skills for condom use, and negotiating safer sex practices (Villarruel, Jemmott, & Jemmott, 2006). A similar, individually focused, evidence-based intervention, Be Proud! Be Responsible!, exists for preventing HIV risk behaviors among African American youth (Jemmott, Jemmott, & Fong, 1992). Like ¡Cuidate!, Be Proud! Be Responsible! is grounded in social cognitive theory, the theory of reasoned action, and the theory of planned behavior (Jemmott & Jemmott, 1996; Villarruel, Jemmott, & Jemmott, 2005), all of which are theoretical frameworks centered around individual-level risk and protective factors. Other evidence-based HIV preventive interventions, such as Familias Unidas, the Strong African American Families program, the Good Behavior Game, and Parents Matter!, target risk and protective factors at the family, peer, and school microsystems level (Ball, Pelton, Forehand, Long, & Wallace, 2004; Dittus, Miller, Kotchick, & Forehand, 2004; Kellam et al., 2012; Murry, Berkel, Brody, Gibbons, & Gibbons, 2007; Prado et al., 2012). In addition to intervening at the microsystem level, these early childhood enrichment programs and youth development programs also address more distal factors of HIV transmission. For example, early childhood programs provide educational enrichment and comprehensive family-support services to foster the health and well-being of children. Reynolds and colleagues (2007) found that an enrichment program provided to children in kindergarten resulted later in higher rates of school completion, lower rates of interaction with the criminal justice system, and higher employment. Each of these outcomes has been negatively associated with HIV transmission. Similarly, youth development programs seek to inspire hope for future aspirations, improve performance in school, and bolster family relationships. Philliber and Allen (1992) showed that adolescents who participated in a youth development program were less likely to initiate sexual intercourse and more likely to have used condoms at last intercourse. Similarly, Kellam et al. (2012) found that a first-grade classroom intervention increased condom use from 40% to 87% in young adulthood in a mostly African American urban environment. It is clear that while great strides have been made to prevent HIV infection among ethnic minority youth, individual-level interventions are insufficient and the need to integrate macro-level approaches is of utmost importance.

Macro-Level Interventions

Up until recently, support for macro-level intervention development and evaluation has been lukewarm and sporadic. Of private and federal funding agencies, the CDC has led much of the effort, issuing many initiatives aimed at strengthening capacity, infrastructure, and partnerships with health departments and community-based organizations in order to prevent the spread of HIV among the general population and those at highest risk. One such recent initiative is the “Heightened National Response to Address the HIV/AIDS Crisis Among African Americans.” This national strategy, recently launched by the CDC, aims at engaging public and nonpublic partners to prevent HIV infection among African Americans (Sutton et al., 2009). Another macro-level intervention aimed at reducing HIV health disparities among ethnic minority youth in the United States is the CDC’s “Minority HIV/AIDS Research Initiative to Build Capacity in Black and Hispanic Communities Among Black and Hispanic Researchers to Conduct HIV/AIDS Epidemiologic and Prevention Research.” This initiative appropriates CDC funding to support early career investigators of color to conduct research aimed at reducing the number of new HIV infections in the United States by eliminating racial and ethnic health disparities in African American and Hispanic/Latino populations (Fitzpatrick, Sutton, & Greenberg, 2006). The recently issued National HIV/AIDS Strategy, which aims to reduce the number of HIV-infected individuals, increase access to care for HIV seropositive individuals, and reduce HIV-related health disparities, is another macro-level intervention. While the effects of the National HIV/AIDS Strategy as well as other recent initiatives are yet unknown, it is likely that such structural-level interventions (i.e., policy-level interventions that appropriate government funding, initiatives that address national awareness) will have a positive impact on the HIV epidemic.

There are, however, macro-level interventions that have been implemented both in the United States and abroad that have been found to be effective. For example, access to comprehensive sex education and access to condoms have been found to be an effective structural HIV prevention strategy both in the United States and in other countries (Blake et al., 2001, 2003, 2005; Kirby, Laris, & Roller, 2007). Comprehensive sex education includes health promotion, disease prevention information, and contraception information. Youth with access to comprehensive sex education programs are more likely to delay the onset of sexual activity, reduce the frequency of sexual activity, reduce the number of sexual partners, and increase condom and contraceptive use (Alford, 2003; Institute of Medicine, 2001; Kirby et al., 2007; Kohler, Manhart, & Lafferty, 2008). Contingent funding policies that support the broad implementation of comprehensive sex education represent a structural intervention with significant potential to impact HIV transmission among youth.

As discussed above, the link between poverty and HIV in the United States is well established. Preventive interventions that improve economic productivity are likely to impact HIV transmission. Structural interventions to reduce poverty have proven effective in developing countries and to a lesser degree in the United States (Sherman, German, Cheng, Marks, & Bailey-Kloche, 2006). Microfinancing, child development accounts, and cash-transfer interventions have been successful at reducing intimate partner violence (Pronyk et al., 2006), a known factor in HIV transmission and reduced sexual risk-taking intentions (Ssewamala, Han, Neilands, Ismayilova, & Sperber, 2010). Access to housing is a structural

intervention that is likely to affect sexual and drug-related behaviors. Among adults, Aidala, Cross, Stall, Harre, and Sumartojo (2005) found that housing status was associated with HIV-related risk behaviors. Those participants who experienced an improvement in their housing status had reduced risk of drug use and unprotected sex (Aidala et al., 2005).

Community-level interventions have also been shown to be efficacious in promoting HIV-related outcomes. For example, the Mpowerment Project is a multilevel intervention for MSM aged 18–29 years that is based on concepts about individual and community empowerment. The intervention has demonstrated efficacy in decreasing HIV-related risk behaviors (Kegeles, Hays, & Coates, 1996). The AIDS Community Demonstration Projects promoted progress toward consistent HIV prevention through community mobilization and distribution of risk reduction information and supplies (e.g., condoms and bleach). The intervention focused on multiple risk groups, including adolescents. This community-level intervention demonstrated significant increases in condom use and condom carrying by community members (CDC AIDS Community Demonstration Projects Research Group, 1999).

These represent but a few of the social/structural interventions that can address the social determinants of the HIV epidemic. Successfully impacting the HIV epidemic requires a move beyond limited, individually focused interventions to those that address social and structural factors. The development of approaches that challenge the underlying social-structural drivers of vulnerability and behavior, while emerging, is the necessary next step in successfully reducing HIV among youth (Auerbach, Parkhurst, Caceres, & Keller, 2009).

If Upstream Interventions Are Important, Why Such an Emphasis on Research on Individual-Level Factors?

There are at least four important reasons why most of the focus on reducing HIV risk for minority youth is on individual-level risk factors and microsystem interventions. First is the directness of the intervention model. With a focus on individual-level factors, psychologists took the lead in developing and/or implementing behavior change models and theories. To achieve individual-level behavior change in adolescents, it is natural to focus directly on the adolescent's behavior during a critical developmental time (i.e., just before or around the time when sexual relations are beginning) and on an intervention delivered in the social contexts of primary socialization (e.g., the family, the school, the youth community, or the church). In contrast, for an upstream intervention to be effective in changing behavior, the intervention model must often (although not always) pass through one or more societal levels to have an influence on the developmental trajectories of youth. These pathways may well be important, as we suggest in this article, but they may at times have an indirect influence on youth. One may posit that improved school culture and climate may increase school bonding and ultimately reduce risky sexual behavior, but there are two challenges to this approach. First, changing system culture and changing system climate are sometimes viewed as difficult tasks with insurmountable barriers. Some researchers suggest that system change requires lengthy systemic intervention (Blankenship, Friedman, Dworkin, & Mantell, 2006). Second, changing the overall school climate may have a positive effect on some youth, particularly those who are already prosocial, but potentially could have an

iatrogenic effect on youth who are most at risk and viewed as having attitudes counter to those of the prevailing culture.

The second major challenge for upstream interventions is that they are difficult to evaluate for efficacy and effectiveness compared to interventions that target individual-level behavior. For individual-level interventions, the number of subjects needed in a randomized trial in order to have sufficient power is on the order of a few hundred, which can often be drawn from one or a few locations, such as middle schools. But for upstream interventions, such as those that aim to increase school bonding and reduce school dropout rates, one typically needs 20 to 40 schools in a randomized trial design, and therefore the trial must be significantly larger (Brown et al., 2009). This size requirement alone greatly increases the cost of the study, and although such trials have been conducted, they are rare compared to those targeting individual-level behavior. Thus, this suggests that to evaluate macro-level intervention effects on HIV risk behaviors among minority youth, large RCTs are required. However, we would like to suggest that RCTs may not be the only “gold standard” for evaluating upstream-level interventions and that other study designs (including quasi-experimental designs) may be more feasible and appropriate in evaluating the impact of an upstream intervention on HIV risk behaviors at a population level. In fact, quasi-experimental designs and methods such as time series analyses have been used to assess the impact of upstream interventions on other public health problems (e.g., effects of alcohol taxes on alcohol-related mortality; Wagenaar, Maldonado-Molina, & Wagenaar, 2009).

Another important factor involves measurement of intervention exposure. For individual-level behavioral interventions, it is relatively easy to measure the quality and quantity of intervention that is delivered to each youth by measuring program fidelity and then to use these measures to test for mediation (MacKinnon, 1994; MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002). In contrast, it is often difficult to assess the level of exposure that individuals receive from an upstream, system-level intervention, and therefore it is more difficult to examine mediational hypotheses, including those postulating the effects of macro-level on micro-level factors.

A fourth reason why individual-level interventions have dominated the HIV prevention field may be the prevailing view that there are limited resources available to intervene at the macro-level or even that intervening at this level is not feasible. However, it is important to consider that intervening at this level is both feasible and even cost-effective. For example, in the obesity field, the ban on trans fat in New York City restaurants was implemented effectively, and preliminary analyses have found the intervention to be effective (Angell et al., 2009).

Although some of the statements above may argue against upstream interventions and for individual-level interventions, it is important to note that individual-level interventions face significant challenges, including the cost of implementing them, their ability to reach a significant proportion of the population, their ability to be implemented with high fidelity and adherence in community practice, and finally, and perhaps most important, their ability to impact the HIV epidemic at a community level. Macro-level interventions, on the other hand, do have the ability to reduce the prevalence of HIV at a population level (Auerbach et

al., 2009). Adoption of HIV education policies (Blake et al., 2005) and condom distribution at schools (Blake et al., 2003) are examples of upstream interventions that can reduce HIV risk behaviors and, consequently, HIV prevalence at a community or population level. Evaluation of these interventions requires innovative and nontraditional study designs and methodologies.

How Can Psychology Support Upstream Interventions?

One important upstream HIV prevention strategy would be to improve the implementation and fidelity of effective micro-level interventions by improving their adoption and sustainability in host organizations and systems. For example, if Medicare reimbursement were available to eligible families seen in primary care, effective parenting programs such as Familias Unidas (Prado et al., 2012) could reach a much larger target population. The opportunities for such policy changes have increased dramatically with the passage of the Affordable Care Act (Mechanic, 2012), and such a change would open up many new opportunities to integrate the perspectives that psychology brings. Certainly, the changing of organizational systems through industrial organizational principles is one of the most active areas of work in the emerging interdisciplinary field of implementation science (Aarons, Ehrhart, Fahrenak, & Hurlburt, 2013; Proctor et al., 2011). Psychology's challenge is to extend theories of how individual attitudes and behaviors (e.g., risk-taking and service utilization) are affected when system-level changes take place and of how organizations change in response to policies (e.g., inclusion of bilingual support services). We recognize that many of our current evidence-based interventions will require adaptations to make them affordable and sustainable for communities, schools systems, and community-based organizations. Computer technologies involving the Internet (eHealth) and mobile phones (mHealth) provide major opportunities to develop adaptive behavioral interventions that fit the needs, preferences, and lifestyle of each person (Brown et al., in press; Mohr et al., 2010). There is a need to develop new behavioral theories (Mohr, Cuijpers, & Lehman, 2011) and methods (Brown et al., in press) for developing so-called "option-riched" interventions (Pisani et al., 2012).

Conclusions

Both upstream and individual-level approaches have strengths as well as weaknesses, and there are complementary advantages for combining approaches. Individual-level behavioral interventions as well as parent interventions have been shown to have strong efficacy on HIV sexual risk reduction, particularly for ethnic minority youth. Thus, they form a foundation on which to build. But because these are currently delivered either in small groups or individually, they are currently not very practical or cost effective for changing the risks of entire populations. Less is known about the effectiveness of upstream interventions on HIV sexual risk behavior, but such programs can have the potential for having an impact at a population level because they have such a large "reach" into communities. There is reason to expect that combining upstream and individual-level strategies can be effective. Indeed, much of the literature on reducing aggressive behavior in youth through school climate change coupled with individual strategies uses such a multitiered approach (McKevitt & Braaksma, 2008) and could be used as a model for broad-based HIV

intervention programs. Similarly, literature on other public health challenges and epidemics has proven that macro-level interventions are effective at decreasing morbidity and mortality at a population level (e.g., increasing the sales tax on alcohol to reduce alcohol-related deaths; restricting or banning smoking in a variety of settings to reduce smoking-related deaths; Hopkins et al., 2001).

In summary, the increasing number of HIV-infected ethnic minority young people is a crisis that demands prevention strategies at a population level. To target individual-level factors is insufficient to have a community-level impact on the HIV epidemic. Macro-level interventions or a combination of macro- and individual-level interventions hold the most promise for reducing the HIV health disparities that exist between ethnic minority youth and other segments of the U.S. population. Psychologists and other public health researchers have an opportunity to advance scientific knowledge on how to ameliorate this significant public health problem.

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Biographies



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