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Latinos and HIV/AIDS: Examining Factors Related to Disparity and Identifying Opportunities for Psychosocial Intervention Research

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Abstract

Latinos maintain an AIDS case rate more than 3 times higher than whites, a greater rate of progression to AIDS, and a higher rate of HIV/AIDS-related deaths. Three broad areas are reviewed related to these disparities: (1) relevant demographic, socioeconomic, and socio-cultural factors among Latinos; (2) drug abuse and mental health problems in Latinos relevant to HIV/AIDS outcomes; and (3) opportunities for psychosocial intervention. Latinos living with HIV are a rapidly growing group, are more severely impacted by HIV than whites, and confront unique challenges in coping with HIV/AIDS. A body of research suggests that depression, substance abuse, treatment adherence, health literacy, and access to healthcare may be fruitful targets for intervention research in this population. Though limited, the current literature suggests that psychosocial interventions that target these factors could help reduce HIV/AIDS disparities between Latinos and whites and could have important public health value.

Keywords

HIV/AIDS; Latino/Hispanic; Treatment adherence; Mental health; Substance abuse; Disparities

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Introduction

HIV/AIDS remains an important public health concern in the United States and, while major gains in treatment have been made, many Americans continue to cope with the heavy burden of this pandemic. Though risky sexual behavior and injection drug use are the major risk factors for transmission, socioeconomic and sociocultural factors are also strongly and consistently associated with risk. Those with the fewest socioeconomic resources—the poor, the uninsured, and the drug addicted—carry the greatest burden of HIV/AIDS in this country. Sociocultural and ethnic minority groups—men who have sex with men (MSM), African Americans, and Latinos[1]—are also disproportionately affected. In this review, we examine reasons for the disproportionate impact of HIV/AIDS on Latinos in comparison to whites and address the ways in which psychosocial research could contribute to better addressing the needs of this underserved, rapidly growing U.S. minority group.

In 2000, Latinos made up 12.5% of the population, surpassing African Americans at 12.3% (United States Bureau of the Census 2002). By 2005, the Latino population had grown to 14.4% of the national population, with over 41 million Latinos living in the United States (United States Bureau of the Census 2006). In this same year, Latinos accounted for 18% of HIV/AIDS diagnoses (Centers for Disease Control 2007). While we recognize that African Americans face the most disproportionate burden of HIV/AIDS among all US ethnic groups, little research has focused on Latinos and reviews of black-white disparities in HIV/AIDS are readily available (e.g., Blankenship et al. 2005; Millett et al. 2006; Smith et al. 2000). Therefore, we focus on secondary and tertiary prevention opportunities with HIV-positive Latinos.

In 2002, HIV/AIDS was the third leading cause of death among Latino males aged 35–44, accounting for 10.4% of all deaths, and the fourth leading cause of death among Latinas in the same age group (6.5% of deaths). These rates are more than double the HIV/AIDS death rates of white males (4.8%) and females (1.9%) in the same age group (Anderson and Smith 2002). Since the advent of highly active antiretroviral therapy (HAART), annual AIDS incidence has fallen significantly. However, the proportion of AIDS cases for U.S. Latinos in 2005 was 3-times higher than the proportion of AIDS cases among whites. Between 2001 and 2005, the estimated number of deaths of persons with AIDS decreased among whites and blacks but remained stable among Latinos (CDC 2007).

In the general U.S. population, while AIDS incidence has decreased over time, AIDS prevalence has increased. This increase can be attributed to the longer life expectancies of HIV-positive patients taking new antiretroviral therapies, including those who have already progressed to AIDS. However, estimated AIDS prevalence among Latinos increased by 130% from 1993 to 2001, compared to a 68% increase among whites (CDC 2001). In 2004, the annual rate of HIV/AIDS diagnosis among Latino males was 60.2 per 100,000 and among Latino females was 16.3 per 100,000. The overall rates for non-Latino white males and females in 2005 were 18.7 and 3.2, respectively (CDC 2006). For men between the ages of 25 and 44, the HIV/AIDS-related death rates per 100,000 in 2003 were 10.3 for Latino men, and 6.2 for white men. For women in the same age range, the rates were 3.8 for Latinas and 1.3 for white women (National Center for Health Statistics 2005). These data indicate that HIV-positive Latinos have significantly worse outcomes than HIV-positive whites.

[1]We use ‘Latino’ as a more inclusive term than ‘Hispanic’, which places an undue emphasis on the European influence of Spanish colonialism. We recognize that there is debate about this terminology and discuss this in more detail below. Also, we recognize that the term ‘non-Hispanic white’ is useful for differentiating whites that do not have a Latino background from other Latinos, who may be of any race. However, we use the term ‘white’ in this review when referring to ‘non-Hispanic whites.’

One challenge in calculating HIV/AIDS estimates by ethnic group is the survey terminology that attempts to group together the heterogeneous peoples of Latin America, often resulting in inaccuracies or distortions. The term 'Hispanic' is an ethnic designation first used in U.S. surveillance reports beginning in the 1970s to identify all persons of Latin American heritage, regardless of race or country of origin. However, many Latinos—persons of Latin American heritage—especially those born outside of the U.S., may not self-identify, or be accurately identified as 'Hispanic.' Studies reviewed below employed different systems for ethnic designations, making it difficult to synthesize the information. Unless otherwise noted, the data presented here refer primarily to Latin Americans living in the U.S.; however, it is likely that there are inconsistencies in the make-up of the samples.

In the following pages, we review the literature to attempt to capture the reasons underlying the HIV/AIDS disparities between Latinos and whites. First, we focus on demographic, socioeconomic, and socio-cultural factors relevant to the imbalance in HIV/AIDS outcomes compared to whites. We then review the impact of drug abuse and mental health problems among Latinos. Finally, we discuss opportunities for behavioral science intervention research to enhance HIV/AIDS outcomes in HIV-positive Latinos. Our review will show that there is a great need for behavioral science research to address the needs of HIV-positive Latinos. The initial evidence suggests that culturally sensitive interventions focusing on improving mental health, substance abuse, treatment adherence, health literacy, and access to care could be especially effective in improving outcomes for this group.

Factors Relevant to HIV/AIDS Disparities among U.S. Latinos

Demographic, socio-economic, and socio-cultural factors influence the degree to which individuals access and utilize health care services, and these factors may play a role in explaining racial and ethnic differences in health care (Institute of Medicine 2002). Differences in HIV/AIDS outcomes and treatment between Latinos and whites in the U.S. must be considered in the context of these factors. Important demographic factors include nation of origin, area of residence, and mode of HIV infection. Socio-economic factors include income, education, language skills, and access to appropriate care. Socio-cultural factors include knowledge, beliefs, and health-care provider communication. Such elements may be associated with aspects of culture and acculturation, including the preference for Spanish language versus English, norms for sexual behavior, stigma, and social oppression.

Demographic Factors Relevant to HIV/AIDS Disparities

While HIV/AIDS disproportionately affects the entire U.S. Latino population, there are significant within-group variations. For example, Latinos born in the U.S. and Puerto Rico have higher rates of HIV/AIDS compared to foreign-born Latinos (National Minority AIDS Council 1999). Likewise, there are significant variations by U.S. area of residence. Latinos are concentrated by geography and AIDS prevalence follows this concentration, with five states/territories—New York, Puerto Rico, California, Texas, and Florida—accounting for three-quarters of AIDS cases among Latino adults and adolescents between the years 2001 and 2002 (Henry J. Kaiser Family Foundation 2003). Therefore, it is important to note that significant within-group variability exists in the U.S. Latino population.

Similar to their white American counterparts, most HIV-positive Latino men are infected through either unprotected sex with men or shared needles from injection drug use (IDU). Recent data demonstrate this pattern, with 59% of HIV-positive Latino males becoming infected through male-to-male sexual contact and 19% contracting the virus through IDU. An additional 4% reported a combination of male-to-male sexual contact and IDU (CDC 2007). However, there appear to be differences in risk depending on nationality. For example, MSM make up the largest risk group among Latinos born in Mexico (48%), the

U.S. (37%), Central or South America (36%), and Cuba (34%). However, IDU is the largest risk category for Puerto Ricans (46%; National Minority AIDS Council 1999).

For Latinas, the majority of HIV-infections occur through heterosexual contact (73%), with an additional 23% infected through IDU (CDC 2007). Many Latinas infected through heterosexual contact are in long-term, perceived monogamous relationships, and are at risk due only to their partners' risky behavior. For example, Rhodes et al. (2007) found that Latino MSM were more than three times as likely as white MSM to have had sex with a woman in the past 2 years, and 2.3 times as likely as white MSM to have used condoms inconsistently during anal sex over the past 3 months. Furthermore, in a sample of 4928 male respondents from the 2002 national Survey of Family Growth, Adimora et al. (2007) found that Latino men were more than twice as likely as white men to have concurrent sexual partnerships. Latina partners of non-monogamous or IDU men often remain unaware of their HIV risk until they or their partners become ill, or until they are screened for HIV during pregnancy care (Rios-Ellis 2003).

Socioeconomic Factors Relevant to HIV/AIDS Disparities

Socio-economic vulnerabilities of U.S. Latinos in terms of income, education, language skills, and access to health care may be associated with aspects of HIV prevention and care. For instance, data from the U.S. Census Bureau, which may be biased due to under-reporting by illegal Latino immigrants, shows that the 2005 median income for Latino households was $35,967, while the median income for non-Latino white households was $50,784 (DeNavas-Walt et al. 2005). The 2002 National Survey of Latinos, conducted by the Pew Hispanic Center and the Kaiser Family Foundation, found that half of all Latinos report having an annual household income under $30,000. In terms of education, over half (55%) of foreign-born Latinos have less than a high school education compared to fewer than a quarter (23%) of native-born Latinos. Native-born Latinos are more likely to have completed high school than foreign-born Latinos (35% vs. 29%), have some college education (29% vs. 9%), or have graduated from college or received a degree after college (13% vs. 7%). With regards to language, native-born Latinos are more likely than foreign-born Latinos to speak English as their primary language (61% vs. 4%) or to be bilingual (35% vs. 24%). Finally, regarding health care, this survey also found a higher rate of Latinos who reported being without health insurance (35%) than whites (14%). A significant number of Latinos also reported difficulty paying for medical bills (22%), delaying seeking care because of costs (20%), or challenges in getting needed health care services (15%). A substantial number of Latinos also report problems communicating with health care providers due to language barriers (29%), or difficulty obtaining care due to their ethnicity (18%; Pew Hispanic Center and Kaiser Family Foundation 2002). Thus, fewer educational and economic resources may represent vulnerabilities to worse HIV/AIDS outcomes for U.S. Latinos.

The socioeconomic barriers that HIV-positive Latinos face mirror the barriers faced by the general Latino population. While Latinos appear to get tested for HIV as often and as soon as whites, they generally have much poorer health insurance coverage. In the HIV Cost and Services Utilization Study (HCSUS), which included a nationally representative sample of people with HIV/AIDS in 1996, 24% of Latinos reported being uninsured, compared to 17% of whites (Bing et al. 2001). Furthermore, Latinos were more likely than whites to have had less than two outpatient visits in the prior six months (Shapiro et al. 1999).

The HCSUS also provides information about other socioeconomic barriers to care faced by HIV-positive Latinos. For example, 19% of Latinos with HIV reported postponing care due to lack of transportation, compared to 11% of whites, and were more likely to postpone care because they were too sick or had competing needs. They also delayed care after diagnosis

more often compared to whites (23% vs. 15%; Turner et al. 2000). Similarly, among HIV-positive patients receiving care in or near Boston and Providence, only 50% of Latinos received HAART compared to 75% of whites (Stone et al. 1998). Thus, Latinos have less access to appropriate HIV-care than whites and face more barriers to obtaining care, possibly due to socioeconomic disparities.

Sociocultural Factors Related to HIV/AIDS Disparities

National survey data provide interesting information on Latinos' views of HIV/AIDS. For example, 83% of Latinos say that access to HIV care is a problem, 73% report that access is affected by income, and 64% report that access is affected by race/ethnicity (Kaiser Family Foundation 2001). This survey also found that respondents who preferred to be interviewed in Spanish expressed greater concern about HIV/AIDS, were significantly more likely to have misperceptions about risk behaviors associated with HIV infection, and expressed a greater need for information about HIV/AIDS. Misperceptions and need for HIV information were also greater among Latinos with less education.

Other empirical investigations have suggested a lack of accurate knowledge concerning HIV/AIDS among Latinos (Scott et al. 1998; DiClemente et al. 1988; Aruffo et al. 1991). Latinos seem more likely to believe myths about HIV transmission by casual contact and less acculturated Latinos are more likely to have these beliefs (Marín and Marín 1990). Acculturation, or the level of familiarity with and incorporation of the American culture (e.g., one aspect of acculturation is English language preference), has been positively related to AIDS knowledge (Organista et al. 1998; London and Driscoll 1999). However, in a multivariate analysis of 121 Latinos from New Jersey that included markers of acculturation and educational attainment, only educational attainment was found to significantly predict HIV/AIDS knowledge (Miller et al. 2002). This suggests that educational disparities may account for much of the difference between Latinos and whites in HIV knowledge.

In addition to having poorer access to care and less accurate knowledge of HIV, Latinos report more sexual risk behavior than whites. Several studies have found increased sexual risk behavior in heterosexually active Latinos (Marin et al. 1993; Grinstead et al. 1997). Latino men report high rates of heterosexual anal intercourse (Billy et al. 1993; Sabogal et al. 1993) and are more likely than Latinas to report having multiple sexual partners (Marin et al. 1993). Researchers have examined possible sociocultural explanations for these higher levels of risk behavior. For example, Díaz and colleagues, using a combination of qualitative and quantitative methods, postulated a theory of health and well-being that is specific to Latino MSM (e.g., Díaz 1998; Díaz et al. 2001; Díaz and Ayala 1999; Díaz et al. 2004). Research demonstrates that various forms of social oppression (i.e., homonegativity, racism, poverty) experienced by Latino MSM are associated with sexual risk behavior and indices of mental health. Likewise, Landrine et al. have advocated for the increased measurement of perceived ethnic discrimination (2006) and acculturation (2004) as stressors that impact health behavior and decisions. This work identifies social oppression experienced by Latinos as a risk factor for HIV.

It is important to recognize the role of normative cultural values in understanding behavior and communication. Latino cultural norms can result in mismatches between patient expectations and health-care interactions that are based on the values of the white majority. Comprehensive reviews are available on the importance of these factors for cognitive-behavioral therapy (Organista 2006), substance abuse counseling (Gloria and Perogy 1996), and the patient-physician relationship (Flores 2000). We briefly describe some examples of the relevance of these values in the context of HIV/AIDS.

Latino culture emphasizes *personalismo*, which values warmth and the personal dimension in both business and personal relationships. Such relationships entail a 'formal friendliness' that may involve the use of physical contact, including handshakes or placing a hand on the other's shoulder (Flores 2000). Relatedly, *simpatia*, or "kindness," emphasizes politeness and pleasantness in the face of stress (Triandis et al. 1984). When these expectations are met with the relatively neutral attitude of many doctors, there is a potential for dissatisfaction with care (Flores 2000). *Respeto*, or respect, is another important value involving an expectation of appropriate deferential behavior on the basis of a position of authority, age, gender, social position, and economic status, which could result in a patient not asking questions or expressing dissatisfaction with care (Flores 2000). *Personalismo*, *simpatia,* and *respeto* are each tied to the importance of developing *confianza*, or trust, in all important relationships (Organista 2006). Failing to meet cultural expectations for communication style, level of warmth, and respect in the patient-provider interaction may result in distrust of the provider. It is important to note that quality of the patient-provider relationship has been associated with treatment adherence in HIV-positive Latinos (van Servellen and Lombardi 2005; Murphy et al. 2003).

Latinos also tend to emphasize a collective or familial orientation, which has been termed *familialismo*. The importance of familial obligations, relying on family for support, and using family members as referents for decisions are concepts related to *familialismo* (Sabogal et al. 1987). Social support from family as well as 'needing someone to live for' have each been related to HIV treatment adherence in Latinos (van Servellen and Lombardi 2005; Murphy et al. 2003). Finally, *fatalismo*, or the belief that one can do little to alter one's fate, is common among Latinos; religious faith bears heavily on this norm. *Fatalismo* can result in use of avoidance and delays in seeking care (Flores 2000). These understudied norms may have important impacts on health behavior, treatment seeking, and patient-provider communication for HIV-positive Latinos.

Drug Abuse and Mental Health Problems in U.S. Latinos

Drug abuse and mental health problems are closely related with each other and are associated with increased HIV risk (e.g., Latkin et al. 2007). Substance abuse and/or mental illness may complicate the treatment needs of HIV-positive patients and may have a negative impact on outcomes (Walkup et al. 2008). Although rates of mental illness appear to be roughly similar between whites and Latinos, there are significant disparities in access to treatment. Compounding the problem is the gross under-representation of Latinos in drug abuse and mental health treatment research.

Latino Substance Use

Sharing needles when using injection drugs is a source of HIV risk for all ethnic groups in the U.S. However, reflecting another disparity, Latinos who inject drugs are at least one and a half times more likely than white IDUs to be infected with HIV (CDC 1992). Data collected between 1996 and 1998 suggest that Latinos who inject drugs may be as much as four times as likely as whites to progress to AIDS, with the number of Latinos living with drug-related AIDS more than doubling between 1995 and 2000 (Day 2003).

The National Survey on Drug Use and Health (NSDUH) provides a cross-sectional snapshot of drug use in the U.S. and shows comparable prevalence in white and Latino populations (NSDUH 2006). Data from this survey show that combined rates of substance dependence and abuse were equivalent among Latinos (9.8% reporting abuse or dependence) and whites (9.6% reporting abuse or dependence). However, among individuals with HIV, according to the HIV Cost and Services Utilization Study (HCSUS), 13% reported substance dependence, with an additional 12% reporting marijuana use and one quarter (26%) reporting other illicit

drug use. Only 50% of HIV-positive individuals surveyed reported abstinence from illicit drug use. Thus, drug abuse and dependence are equivalent among Latinos and whites and are quite high among HIV-positive individuals, regardless of ethnicity.

Latino Mental Health

Mental Health Problems in U.S. Latinos—A minority supplement to the Surgeon General's Report on Mental Health (1999) notes that the prevalence rates of mental disorders in U.S. Latinos are similar to those for whites (US Department of Health and Human Services [DHHS] 2001). The National Epidemiologic Survey on Alcoholism and Related Conditions (Hasin et al. 2005) found a 4.27% 12-month prevalence of major depressive disorder among Latinos, compared with 5.53% for whites. The National Survey on Drug Use and Health (2006) found that rates of serious psychological distress were equivalent between adult Latinos (10.8%) and whites (10.3%). Past year prevalence of major depressive episode was also similar for whites (8.5%) and Latinos (8%).

Latinos infected with HIV, according the HCSUS, do not have higher rates of psychiatric disorders than HIV-positive whites. However, rates of psychiatric distress among HIV-positive individuals are quite high. Nearly half (48%) of the sample screened positive for one or more psychiatric disorders. More than one-third screened positive for major depression, and more than one-quarter experienced symptoms of dysthymia during the previous 12 months. These HCSUS data were compared to data from the National Household Survey on Drug Abuse (NHSDA), which interviewed a nationally representative sample of 22,181 people in 1994 using the same screeners as the HCSUS. The proportion of HCSUS participants screening positive for major depression was nearly 5-times greater than in the NHSDA, and the proportion for Generalized Anxiety Disorder was nearly 8-times higher. Rates of positive screens for panic attacks were 4-times greater. These data suggest a strikingly high prevalence of mental health problems among HIV-positive individuals.

More recent data from a prospective cohort study with a large multiethnic sample of HIV-positive women show that 73% of the women met criteria for mild depressive symptoms and 47% met criteria for moderate-to-severe depressive symptoms (Cook et al. 2002). A significantly higher percentage of Latinas were represented in each of these cutoff categories than white women. Latino MSM living in U.S. urban centers also exhibit a relatively high frequency of symptoms of psychological distress and disorder and these psychological symptoms are predicted by experiences of social discrimination (i.e., homophobia, racism, and poverty; Diaz et al. 2001). The potential direct and indirect effects of perceived discrimination on the mental and physical health of individuals in the African-American community have been described by Clark et al. (1999) and may generalize to other ethnic minority groups. The chronic social discrimination experienced by U.S. Latinos may not only be associated with the increased risk of contracting HIV, but it may also adversely affect the health trajectory of persons living with the virus. Thus, understanding the forms of discrimination perceived by Latinos in the U.S. and their possible direct and indirect effects on health may be essential to the development of psychosocial HIV prevention and post-infection intervention programs.

Access to Mental Health Services—As noted previously, Latinos are the least likely of all the ethnic groups living in the U.S. to have health insurance and 37% of Latinos are estimated to have neither public nor private health insurance, which is roughly double the rate of uninsured whites (DHHS 2001). Recent data from the first 1500 outpatients with major depression who enrolled in the Sequenced Treatment Alternatives to Relieve Depression trial illustrate the consequences of insurance status on mental health. Patients with public or no insurance who were more likely to be from racial or ethnic minority

groups, were also more likely to have comorbid medical and psychiatric conditions, have a greater severity of depression, and to suffer greater functional impairment (Lesser et al. 2005). Latinos are less likely than white Americans to receive necessary mental health care and when they do receive care, they are more likely to receive it from primary health providers than from mental health specialists (DHHS 2001). Furthermore, a study of insured U.S. federal employees found that white employees were 1.7 times more likely to visit an outpatient mental health provider and make 2.6 more mental health visits per year compared to both African Americans and Latinos (Padgett et al. 1994). Thus, even insured Latinos are less likely to receive mental health care than whites.

More recent data from a follow-up to the nationally representative Healthcare for Communities survey also show consistent ethnic differences in mental health care (Wells et al. 2001). Latinos reported less access to care, poorer quality of care, and greater unmet needs for alcoholism, drug abuse, and mental health treatment in comparison to whites. Latinos reported more delays in receiving care, lower satisfaction with care, and lower rates of active treatment among those in need. The percentage of those in need who were receiving active treatment was nearly 50% less for Latinos than for whites. Data from the 1980s Medical Outcomes Study suggest that providers were less likely to detect diagnosable mental disorders in Latino patients than in whites (Borowsky et al. 2000). However, more recent data suggest that although providers may recognize depression and recommend treatment at equal levels with white patients, Latinos are still less likely to obtain appropriate care (Miranda and Cooper 2004).

Representation in Mental Health Research—This disparity in access to treatment is, unfortunately, mirrored in treatment research. The Surgeon General's Report notes a striking absence of ethnic/racial minorities in psychiatric clinical trials conducted between 1986 and 1994. Often, ethnic group comparisons were not made when examining outcomes of these trials and most trials lacked an adequate number of minorities to conduct such comparisons. Only 7% of those participating in depression trials conducted during this period were identified as ethnic minorities (DHHS 2001). While this state of affairs has been improving, there is still a paucity of data regarding the treatment of mental health problems in ethnic/racial minority patients (Schraufnagel et al. 2006).

Opportunities for Psychosocial Intervention Research with HIV-Positive Latinos

Effective interventions are urgently needed to improve HIV outcomes for HIV-positive Latinos, who have been under-represented in HIV intervention research to date (Amaro et al. 2001). A recent review located 20 trials of primary HIV risk reduction in U.S. Latinos and found evidence for an overall effect for increasing condom use and decreasing the number of sexual partners, the odds of acquiring sexually transmitted infections, injection drug use, and sharing of drug paraphernalia. However, few studies included HIV-infected participants (Herbst et al. 2007).

Below, we focus on research suggesting that culturally sensitive interventions addressing (1) HIV treatment adherence, (2) psychological distress, particularly depression, (3) substance abuse, (4) healthy literacy, and (5) access to care are needed to improve outcomes for HIV-positive Latinos. We conducted a systematic search of PsycINFO and MEDLINE for psychosocial intervention trials conducted with HIV-positive Latino samples published by the end of 2007. The search combining HIV/AIDS with Latino/Hispanic and various terms to identify psychosocial interventions returned 247 abstracts. Because only one trial conducted with an HIV-positive Latino sample was found (van Servellen et al. 2005), we also review an unpublished randomized trial conducted by a member of our group (R.

Dúran) and include examples of interventions conducted with multi-ethnic HIV-positive samples that reported at least a representative proportion of Latino participants. We then provide examples of intervention work conducted with non-HIV-positive Latino populations, as these studies could serve as important models for further intervention work with HIV-positive Latinos. These intervention studies are presented in Table 1. We do not include substance abuse interventions reviewed by Herbst et al. (2007) due to space constraints.

HIV Treatment Adherence and Latinos

Adherence to HIV medications is critical for treatment success and numerous studies have established that poor adherence is associated with poor outcomes, as measured by viral load or CD4 cell count (e.g., Bangsberg et al. 2000; Catz et al. 2000; Paterson et al. 2000). These data reveal the necessity of high levels of adherence to maximize treatment outcomes. A number of intervention studies have been conducted to improve medication adherence in HIV-positive individuals (Simoni et al. 2006). However, with few notable exceptions (see below), ethnic minorities have been under-represented in studies of psychosocial factors in HIV-treatment adherence.

Possibly due to under-representation of ethnic minorities in antiretroviral adherence research, ethnicity has not been consistently associated with nonadherence to HIV treatment. This lack of a consistent association, however, does not rule out the possibility that different factors may be salient for Latinos than for other groups in influencing adherence. One published study focused on HIV-positive Latinos using a mixture of qualitative and quantitative approaches to data analysis (Murphy et al. 2003). This study used a sample of 81 HIV-positive monolingual and bilingual Spanish-speaking patients to identify important barriers and successful strategies for HAART adherence. The most important reasons for nonadherence cited by participants were feeling depressed or overwhelmed (21%), simply forgetting (19%), and sleeping through a dose (17%). Qualitative analyses revealed a number of important barriers and facilitators to adherence. Patient characteristics that were found to play a role in adherence included: (1) patients' level of social support, (2) beliefs about the efficacy of antiretroviral medications, (3) use of alcohol and/or drugs, (4) willingness to take medications in front of others, (5) negative mood states, and (6) daily schedules. The quality of the patient's relationship with the health care professional was also found to affect adherence. A number of patients expressed feeling uncomfortable discussing adherence issues with their providers and worried about provider reactions. Participants also stated that attending a health care facility that did not have a physician who spoke Spanish was detrimental to their adherence. Additionally, side effects and negative characteristics of the dosing regimen were reported to have a negative influence on adherence.

The findings of this study can be compared with a similar study by Murphy et al. (2000) conducted with English-speaking patients. One obvious difference was the role of language barriers in nonadherence for Spanish-speaking patients. Another key difference is that, although both groups reported that social support had a positive influence on adherence, Latinos were likely to report extremely strong feelings of needing 'someone to live for.' Consistent with these results, a quantitative study of 85 Spanish-speaking HIV-positive Latinos showed that emotional or informational support from friends and/or family was associated with aspects of improved medication adherence (van Servellen and Lombardi 2005). This may be related to the importance of *familialismo.*

One research group recently developed and tested an intervention to increase HAART adherence specifically for low-income, Spanish-speaking, HIV-positive Latinos (van Servellen et al. 2005; Table 1). These investigators reasoned that for an adherence intervention to be successful, it would need to address the needs of a population that is less

familiar with the health care system, less adept in navigating and accessing the services they need, and less likely to be literate (van Servellen et al. 2003). Although preliminary, results suggest that a culturally adapted behavioral treatment can be successful in improving health literacy and patient-provider relationships in HIV-positive Latinos.

Depression and HIV-positive Latinos

Studies have consistently found significant relationships between depressive symptoms and HIV disease progression, (e.g., Leserman et al. 2000; Patterson et al. 1996; Ickovics et al. 2001). For example, Cook et al. (2004) examined longitudinal data from an ethnically-diverse cohort of 1716 HIV-positive women (23% Latina) and found that, even after controlling for antiretroviral therapy use, medication adherence, substance abuse, clinical indicators, and demographic factors, women who were chronically depressed were more than twice as likely to die from AIDS than those who were not. Additionally, although results from studies examining the relationship between depression and sexual risk are mixed (Crepaz and Marks 2001), lowered self worth and increased levels of depression have each been associated with greater frequency of high-risk sexual behavior among Latino MSM and Latino HIV-positive MSM, respectively (Dolezal et al. 2000; Poppen et al. 2004).

Research further demonstrates that depression is associated with poor adherence to medical regimens (DiMatteo et al. 2000). A number of studies have supported the relationship between depressive symptoms and treatment nonadherence among heterogeneous samples of HIV-positive men (Catz et al. 2000; Gonzalez et al. 2004; Gordillo et al. 1999; Hirschhorn et al. 1998; Kleeberger et al. 2001; Paterson et al. 2000; Safren et al. 2001; Simoni et al. 2002). Symptoms of depression make the already difficult task of adhering to HIV treatment regimens much more difficult for patients. As Latinos experience depression at the same rates as whites and are less likely to obtain appropriate care, they may be at higher risk for depression-related nonadherence.

The consistent association between depression and worse HIV outcomes suggests that interventions that are successful in treating depression in this population could also have positive effects on health. There is a small body of evidence for the efficacy of depression treatment interventions in Latino populations. Several studies, as shown in Table 1, examined depression treatment outcomes among various Latino populations, including Puerto Rican mothers (Comas-Diaz 1981), Mexican women (Lara et al. 2003), Puerto Rican adolescents (Rosselló and Bernal 1999), and Spanish speaking IDUs (González et al. 1993) with favorable results. Likewise, several successful depression treatment studies with minority samples have had a significant number of Latino participants (Miranda et al. 2003, 2004; Table 1). For example, Miranda et al. (2003) found that medication or cognitive-behavioral therapy reduced depressive symptoms significantly more than a community mental health referral. Another multi-ethnic study found that collaborative care significantly improved rates of depression care, lowered depression severity, and lowered health-related functional impairment for patients, regardless of ethnicity (Areán et al. 2005; Table 1). A final multi-ethnic study of HIV-positive patients with depressive symptoms found that interpersonal psychotherapy or supportive psychotherapy with imipramine resulted in significantly greater improvement in depressive symptoms than other treatment conditions (Markowitz et al. 2000; Table 1).

Finally, a preliminary body of research suggests that cognitive-behavioral stress management (CBSM; Antoni et al. 2007), which integrates cognitive-behavioral therapy skills with relaxation and stress management strategies, can be effective in HIV-positive samples that include Latinos. However, future studies must include sufficient numbers of minority patients to facilitate ethnic comparisons of treatment outcomes. Recent data from group-based CBSM trials in relatively diverse samples of HIV-positive men have

demonstrated efficacy for mood and other health-related outcomes (Carrico et al. 2005; Carrico et al. 2006; Antoni et al. 2006; See Table 1). An adaptation of CBSM for HIV-positive multi-ethnic women has also shown success with mood outcomes but results for quality of life and adherence have been mixed (Jones et al. 2003; LaPerriere et al. 2005; Lechner et al. 2003; See Table 1). While these studies did include Latinos, all were English-speaking and no analyses were reported to determine whether ethnicity moderated intervention effects. However, promising preliminary data from a full cultural adaptation of the CBSM intervention for HIV-positive monolingual Latino MSM suggest that CBSM is effective in improving several psychosocial and health-related outcomes (Durán et al. 2006; Table 1).

Substance Abuse and HIV-positive Latinos

Drug use and abuse is common among HIV-positive patients and is associated with worse outcomes. HCSUS data show that approximately 50% of HIV-positive patients reported using drugs in the prior 12 months and studies demonstrate that substance use negatively impacts HIV medication adherence (Chesney et al. 2000; Gebo et al. 2003; Golin et al. 2002; Haubrich et al. 1999; Lucas et al. 2002; Power et al. 2003; Wilson et al. 2002; Lucas et al. 2001). Studies have also identified a similar relationship between injection drug use and nonadherence (Aloisi et al. 2002; Gordillo et al. 1999; Stein et al. 2000; Gifford et al. 2000; Holzemer et al. 1999). See Uldall et al. (2004) for a detailed review of this literature.

Drug use has also been associated with high-risk sexual behavior (Stall and Purcell 2000; Kalichman 2000). Studies of MSM have shown that use of alcohol or other drugs prior to engaging in sexual activity is associated with increased frequency of unprotected receptive and insertive anal intercourse (e.g., Kelly and Kalichman 1998). This relationship has also been documented in samples of Latino MSM (Diaz et al. 1996; Dolezal et al. 2000) as well as in HIV-positive Latino MSM (Poppen et al. 2004).

Recent reviews note a general lack of both behavioral and pharmacotherapy treatment research that specifically targets Latino drug and/or alcohol abusers and note that Latinos are currently underserved by substance abuse treatment services (Alegria et al. 2006; Amaro et al. 2006). These authors recommend the reanalysis of existing treatment datasets to examine potential differences in effects between Latino and other groups, consistent with guidelines from the National Institutes of Health relating to the inclusion of minorities in research (National Institutes of Health 2000).

Herbst et al. (2007) review six HIV prevention studies (Castro and Tafoya-Barraza 1997; Colón et al. 1993; Dushay et al. 2001; Nyamathi et al. 1994; Robles et al. 2004; Schilling et al. 1991) targeting drug risk behaviors in Latinos and note an overall significant reduction in injection drug use and sharing of injection paraphernalia, but not for needle sharing. Still, the ability of these interventions to improve drug use outcomes is promising. Only two of the six studies reported efforts to culturally adapt the intervention for Latinos. Four studies included some HIV-positive participants but the maximum was 46% (see Herbst et al. 2007 for study details). In general, there have been few behavioral intervention trials for HIV-positive individuals and the results of these studies have been mixed (Strathdee and Patterson 2006). Interventions that decrease drug abuse among HIV-positive Latinos are needed, as they may be successful in reducing risk, improving adherence, and improving health outcomes.

Health Literacy Among HIV-positive Latinos

Healthy People 2010 (DHHS 2002) defines health literacy as “The degree to which individuals have the capacity to obtain, process, and understand basic health information and

services needed to make appropriate health decisions." The American Medical Association Council on Scientific Affairs concluded that low health literacy is associated with poor health outcomes, raising serious concerns about the ability of Americans to function adequately in health care settings (American Medical Association 1999). Studies of Latinos have shown that many have inadequate health literacy, even in Spanish. For example, a four-city study of 3260 new Medicare enrollees aged 65 or older found that 53.9% of Spanish-speaking respondents had inadequate or marginal health literacy in comparison to 33.9% of English-speaking respondents (Gazmararian et al. 1999). Nation-wide, approximately 56% of Latinos are classified as functionally illiterate (Kirsch et al. 1993).

As linguistic minorities in the U.S., Latinos, especially those who are monolingual, face additional challenges to reaching optimal HAART adherence. These challenges may include difficulties in obtaining and understanding accurate information about HIV and its treatment in an appropriate level of Spanish. In addition, language may be a proxy (albeit insufficient) for acculturation. Under-acculturated individuals may hold certain cultural values (e.g., *respeto*, *fatalismo*, *machismo*), beliefs about the cause of their condition (e.g., internalized and experienced homonegativity and racism), and inaccurate information about medications (e.g., they are poisonous because they make me sick) that could work against obtaining the best possible medical care. Moreover, English language skills in the U.S. are directly proportional to income, and it is an unfortunate fact that in the U.S., the quality of medical care one receives is often a function of the quality of health insurance one can afford. Health education for cardiovascular disease has been successfully incorporated into English-as-a-second-language classes for low-literacy Latinos and may be a useful model for HIV research (Elder et al. 2000; Table 1).

Health literacy is repeatedly associated with HIV-treatment adherence (Fogarty et al. 2002). In a study of HIV-positive men and women, a significant correlation was found between years of education and health literacy, and between literacy and adherence (Kalichman et al. 1999). An additional study found that after adjusting for years of education, lower health literacy was associated with poorer knowledge of one's HIV-related health status, poorer AIDS-related disease and treatment knowledge, and more negative health care perceptions and experiences (Kalichman and Rompa 2000). One study of low-income HIV-positive Latino men and women (van Servellen et al. 2003) found that years of education was associated with understanding HIV terms, as well as accurately reading and understanding instructions on prescription bottles. As noted above, this group piloted an intervention that sought to improve HIV treatment adherence and health literacy among HIV-positive Spanish-speaking Latinos (see Table 1).

Access to Care Among HIV-positive Latinos

Access to medical care for HIV-positive Latinos varies based on a variety of factors, according to data from the HCSUS (Morales et al. 2004). The most vulnerable HIV-positive Latinos include the uninsured, those seeking HIV care in the Southern U.S., and men, though previous studies have found that women have worse access to care (Shapiro et al. 1999). These disparities necessitate change on many levels, from individual to institutional to policy and law. At the level of psychosocial intervention and access to care, however, effective interventions connecting Latinos to health care may take place inside or outside the medical model (Wasserman et al. 2007). One study showed success in using outreach staff to link out-of-treatment HIV-infected minorities (36% Latino) to HIV care (Molitor et al. 2005; See Table 1). Additional creative strategies have been used to connect other patient populations of Latinos to care and work has also been done in HIV-prevention outreach. One strategy, developed in the migrant health community, is the use of *promotoras*—community health counselors who are linked to both the Latino community and the mainstream medical community—and act as mediators to care. For example, this

community-based model has been tested in church-based communities for breast cancer screening (Sauaia et al. 2007; Table 1), Mexican-American communities for diabetes control (Lujan et al. 2007; Ingram et al. 2007; Table 1), and in an urban Latino community to increase HIV knowledge (Martin et al. 2005; Table 1). Such community-based approaches may be successful in reaching Latinos who are otherwise unlikely to access conventional services. For example, one group has examined the feasibility of reaching Latino men at risk for HIV through Latino soccer leagues in North Carolina (Rhodes et al. 2006). Overall, these inventive strategies and the use of culturally sensitive case management, community health workers, and patient navigators (Vargas and Cunningham 2006), hold promise to improve HIV-positive Latinos' access to care.

General Conclusion

The literature reviewed suggests that HIV-positive Latinos are a rapidly growing group, are more severely impacted by HIV than whites, confront unique sociocultural challenges in coping with this disease, and are currently under-supported by available science and clinical service. Epidemiological data demonstrate the disproportionate impact of HIV/AIDS on Latinos, as well as less access to appropriate care. Data on drug abuse patterns and mental health characteristics of HIV-positive Latinos suggest that both problems are prevalent and may negatively impact HIV health outcomes and health behaviors, including risky sex and HIV treatment adherence. There is currently an unmet need for culturally sensitive intervention research to address treatment adherence, drug abuse, and mental health factors among HIV-positive Latinos, and preliminary evidence suggests potential efficacy for such interventions. Research also suggests that health literacy and access to health care may be particularly important targets for intervention in this group.

This review, along with another comprehensive review of psychosocial interventions for ethnic minorities (Miranda et al. 2005), provides evidence for the applicability of empirically supported psychosocial interventions in Latino populations. We have identified health behavior, mental health, and substance abuse targets of such interventions that could be especially important in the context of HIV/AIDS. Greater efforts should be made to enroll Latinos in behavioral intervention trials and to examine outcomes by ethnicity. Additionally, variables that might explain differences in outcome (reviewed above and including acculturation, literacy, discrimination, cultural norms, etc.) should be routinely assessed. Furthermore, more work is needed to operationalize the process of culturally adapting mental health interventions for use with Latinos. At this stage, the available literature provides little guidance beyond suggesting that culturally adapted interventions can be effective in this population, but we do not know whether they are more effective than treatments based on the majority culture. The issues contributing to the disproportionate impact of HIV/AIDS on U.S. Latinos are complex. Sex, sexual orientation, mode of infection, language proficiency/literacy, level of acculturation, nation of origin, and experiences with racism, homophobia, and other forms of marginalization are each important factors to be considered in work with this population. Comprehensive, methodologically rigorous studies that examine these demographic, socioeconomic, and sociocultural variables and their relationships to the HIV/AIDS disparity are needed.

Although we have considered Latinos as a group that differs from the white majority population in important respects, we have also noted that there is heterogeneity within this group. Therefore, generalizations are likely to result in distortions. It is clear that interventions targeted at the individual can only be partially successful in addressing the disparities in HIV/AIDS between whites and Latinos. Systems-level interventions are needed to address the problems of poverty, lower education, and less access to appropriate medical and mental health care in the U.S. Latino population. As the Latino population is

growing rapidly in the U.S. and, unfortunately, continues to bear a heavy burden of HIV/AIDS, such interventions could have a broad and important public health impact.

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References

Ad Hoc Committee on Health Literacy for the Council on Scientific Affairs, American Medical Association. Health literacy: Report of the council on scientific affairs. JAMA. 1999; 281(6):552–557.10.1001/jama.281.6.552 [PubMed: 10022112]

Adimora AA, Schoenbach VJ, Doherty IA. Concurrent sexual partnerships among men in the United States. American Journal of Public Health. 2007; 97:2230–2237.10.2105/AJPH.2006.099069 [PubMed: 17971556]

Alegria M, Page JB, Hansen H, Cauce AM, Robles R, Blanco C, et al. Improving drug treatment services for Hispanics: Research gaps and scientific opportunities. Drug and Alcohol Dependence. 2006; 84S:S76–S84.10.1016/j.drugalcdep.2006.05.009 [PubMed: 16781087]

Aloisi MS, Arici C, Balzano R, Noto P, Piscopo R, Filice G, et al. Behavioral correlates of adherence to antiretroviral therapy. Journal of Acquired Immune Deficiency Syndromes. 2002; 31:S145–S148. [PubMed: 12562039]

Amaro H, Arevalo S, Gonzalez G, Szapocznik J, Iguchi MY. Need and scientific opportunities for research on substance abuse treatment among Hispanic adults. Drug and Alcohol Dependencies. 2006; 84:S64–75.10.1016/j.drugalcdep.2006.05.008

Amaro H, Raj A, Vega RR, Mangione TW, Perez LN. Racial/ethnic disparities in the HIV and substance abuse epidemics: Communities responding to the need. Public Health Reports. 2001; 116:434–448. [PubMed: 12042608]

Anderson, RN.; Smith, BL. Deaths: Leading causes for 2002; National Vital Statistics Report 2005. 2002. p. 53p. 56Available at http://www.cdc.gov/nchs/data/nvsr/nvsr53/nvsr53_17.pdf. Retrieved on May 7th, 2007

Antoni MH, Carrico AW, Duran RE, Spitzer S, Penedo F, Ironson G, et al. Randomized clinical trial of cognitive behavioral stress management on human immunodeficiency virus viral load in gay men treated with highly active antiretroviral therapy. Psychosomatic Medicine. 2006; 68:143–151.10.1097/01.psy.0000195749.60049.63 [PubMed: 16449425]

Antoni, MH.; Ironson, G.; Schneiderman, N. Cognitive-Behavioral Stress Management for individuals living with HIV: Facilitator Guide. New York City: Oxford University Press; 2007.

Areán PA, Ayalon L, Hunkeler E, Lin E, Tang L, Harpole L, et al. Improving depression care for older, minority patients in primary care. Medical Care. 2005; 43:381–390.10.1097/01.mlr.0000156852.09920.b1 [PubMed: 15778641]

Aruffo JF, Coverdale JH, Vallbona C. AIDS knowledge in low-income and minority populations. Public Health Reports. 1991; 106:115–119. [PubMed: 1902302]

Bangsberg DR, Hecht FM, Charlebois ED, Zolopa AR, Holodniy M, Sheiner L, et al. Adherence to protease inhibitors, HIV-1 viral load, and development of drug resistance in an indigent population. AIDS. 2000; 14:357–366.10.1097/00002030-200003100-00008 [PubMed: 10770537]

Billy JO, Tanfer K, Grady WR, Klepinger DH. The sexual behavior of men in the United States. Family Planning Perspectives. 1993; 25:52–60.10.2307/2136206 [PubMed: 8491287]

Bing EG, Burnam MA, Longshore D, Fleishman JA, Sherbourne CD, London AS, et al. Psychiatric disorders and drug use among human immunodeficiency virus-infected adults in the United States. Archives of General Psychiatry. 2001; 58:721–728.10.1001/archpsyc.58.8.721 [PubMed: 11483137]

Blankenship KM, Smoyer AB, Bray SJ, Mattocks K. Black-white disparities in HIV/AIDS: The role of drug policy and the corrections system. Journal of Health Care for the Poor and Underserved. 2005; 16:140–156.10.1353/hpu.2005.0110 [PubMed: 16327113]

Borowsky SJ, Rubenstein LV, Meredith LS, Camp P, Jackson-Triche M, Wells KB. Who is at risk of nondetection of mental health problems in primary care? Journal of Internal Medicine. 2000; 15:381–388.

Carrico AW, Antoni MH, Duran RE, Ironson G, Penedo F, Fletcher MA, et al. Reductions in depressed mood and denial coping during cognitive behavioral stress management with HIV-positive gay men treated with HAART. Annals of Behavioral Medicine. 2006; 31:155–164.10.1207/s15324796abm3102_7 [PubMed: 16542130]

Carrico AW, Antoni MH, Pereira DB, Fletcher MA, Klimas N, Lechner SC, et al. Cognitive behavioral stress management effects on mood, social support, and a marker of antiviral immunity are maintained up to 1 year in HIV-positive gay men. Internal Journal of Behavioral Medicine. 2005; 12:218–226.10.1207/s15327558ijbm1204_2

Castro, FG.; Tafoya-Barraza, HM. Treatment issues with Latinos addicted to cocaine and heroin. In: Garcia, JG.; Zea, MC., editors. Psychological interventions and research with Latino populations. Boston, MA: Allyn and Bacon; 1997. p. 191-216.

Catz SL, Kelly JA, Bogart LM, Benotsch EG, McAuliffe TL. Patterns, correlates, and barriers to medication adherence among persons prescribed new treatments for HIV disease. Health Psychology. 2000; 19:124–133.10.1037/0278-6133.19.2.124 [PubMed: 10762096]

Centers for Disease Control and Prevention. National HIV Serosurveillance Summary Results. 1992; 3:19.

Centers for Disease Control and Prevention. HIV/AIDS Surveillance Report, Year-End Edition. 2001; 13:1–44.

Centers for Disease Control and Prevention. No turning back: Addressing the HIV crisis among men who have sex with men. 2001.

Centers for Disease Control and Prevention. Cases of HIV infection and AIDS in the United States by race/ethnicity, 2000–2004. HIV/AIDS Surveillance Supplemental Report 2006. 2006; 12(1) Also available at: http://www.cdc.gov/hiv/topics/surveillance/resources/reports/index.htm.

Centers for Disease Control and Prevention. HIV/AIDS Surveillance Report 2005. Vol. 17. Atlanta: US Department of Health and Human Services, Centers for Disease Control and Prevention; 2007. Rev edAlso available at: http://www.cdc.gov/hiv/topics/surveillance/resources/reports

Chesney MA, Ickovics JR, Chambers DB, Gifford AL, Neidig J, Zwick DB. Self-reported adherence to antiretroviral medications among participants in HIV clinical trials: The AACTG adherence instruments. AIDS Care. 2000; 12:255–266. [PubMed: 10928201]

Clark R, Anderson NB, Clark VR, Williams DR. Racism as a stressor for African Americans: A biopsychosocial model. American Psychologist. 1999; 54:805–816.10.1037/0003-066X.54.10.805 [PubMed: 10540593]

Colon HM, Robles RR, Freeman D, Matos T. Effects of a HIV risk reduction education program among injection drug users in Puerto Rico. Puerto Rico Health Sciences Journal. 1993; 12:27–34. [PubMed: 8511243]

Comas-Diaz L. Effects of cognitive and behavioral group treatment on the depressive symptomatology of Puerto Rican women. Journal of Consulting and Clinical Psychology. 1981; 49:627–632.10.1037/0022-006X.49.5.627 [PubMed: 7287971]

Cook JA, Cohen MH, Burke J, Grey D, Anastos K, Kirstein L, et al. Effects of depressive symptoms and mental health quality of life on use of highly active antiretroviral therapy among HIV-seropositive women. Journal of Acquired Immunie Deficiency Syndromes. 2002; 30:401–409.

Cook JA, Grey D, Burke J, Cohen MH, Gurtman AC, Richardson JL, et al. Depressive symptoms and AIDS-related mortality among a multisite cohort of HIV-positive women. American Journal of Public Health. 2004; 94:1133–1140. [PubMed: 15226133]

Crepaz N, Marks G. Are negative affective states associated with HIV sexual risk behaviors/A meta-analytic review. Health Psychology. 2001; 20:291–299.10.1037/0278-6133.20.4.291 [PubMed: 11515741]

Day, D. Health Emergency. Princeton, NJ: The Dogwood Center; 2003. The spread of drug-related AIDS and Hepatitic C among African Americans and Latinos.

DeNavas-Walt, C.; Proctor, B.; Lee, CH. US Census Bureau, Current Population Reports 60–231. Washington D.C: U.S. Government Printing Office; 2005. Income, poverty, and health insurance coverage in the United States.

Díaz, RM. Latino gay men and HIV: Culture, sexuality, and risk behavior. New York: Routledge; 1998.

Díaz RM, Ayala G. Love, Passion, and rebellion: Ideologies of HIV risk among Latino gay men in the USA. Culture, Health & Sexuality. 1999; 1:277–293.

Díaz RM, Ayala G, Bein E. Sexual risk as an outcome of social oppression: Data from a probability sample of Latino gay men in three U.S. cities. Cultural Diversity and Ethnic Minority Psychology. 2004; 10:256–267.10.1037/1099-9809.10.3.255

Díaz RM, Ayala G, Bein E, Henne J, Marín BV. The impact of homophobia, poverty, and racism on the mental health of gay and bisexual men: Findings from 3 U.S. cities. American Journal of Public Health. 2001; 91:927–932. [PubMed: 11392936]

Díaz RM, Stall RD, Hoff C, Diagle D, Coates TJ. HIV risk among Latino gay men in the Southwestern United States. AIDS Education and Prevention. 1996; 8:415–429. [PubMed: 8911569]

DiClemente RJ, Boyer CB, Morales ES. Minorities and AIDS: Knowledge, attitudes, and misconceptions among black and Latino adolescents. American Journal of Public Health. 1988; 78:55–57. [PubMed: 3337306]

DiMatteo MR, Lepper HS, Groghan TW. Depression is a risk factor for noncompliance with medical treatment: Meta-analysis of the effects of anxiety and depression on patient adherence. Archives of Internal Medicine. 2000; 160:2101–2107.10.1001/archinte.160.14.2101 [PubMed: 10904452]

Dolezal C, Carballo-Dieguez A, Nieves-Rosa L, Diaz F. Substance use and sexual risk behavior: Understanding their association among four ethnic groups of Latino men who have sex with men. Journal of Substance Abuse. 2000; 11:323–336.10.1016/S0899-3289(00)00030-4 [PubMed: 11147230]

Durán, R.; Stoelb, B.; Bedoya, CA.; Antoni, M.; Schneiderman, N. Adapting a manualized group intervention for Spanish-speaking adults living with HIV: El Proyecto ARMESE. Paper presented at the annual American Group Psychotherapy Association meeting; San Francisco, CA. 2006.

Dushay RA, Singer M, Weeks MR, Rohena L, Gruber R. Lowering HIV risk among ethnic minority drug users: Comparing culturally targeted intervention to a standard intervention. American Journal of Drug and Alcohol Abuse. 2001; 27:501–524.10.1081/ADA-100104515 [PubMed: 11506265]

Elder JP, Candelaria JI, Woodruff SI, Criqui MH, Talavera GA, Rupp JW. Results of language for health: Cardiovascular disease nutrition education for Latino English-as-a-second-language students. Health Education and Behavior. 2000; 27:50–63.10.1177/109019810002700106 [PubMed: 10709792]

Flores G. Culture and the patient-physician relationship: Achieving cultural competency in health care. The Journal of Pediatrics. 2000; 136:14–23.10.1016/S0022-3476(00)90043-X [PubMed: 10636968]

Fogarty L, Roter D, Larson S, Burke J, Gillespie J, Levy R. Patient adherence to HIV medication regimens: A review of published and abstract reports. Patient Education Counsel. 2002; 46:93–108.10.1016/S0738-3991(01)00219-1

Gazmararian JA, Baker DW, Williams MV, Parker RM, Scott TL, Green DC, et al. Health literacy among medicare enrollees in a managed care organization. The Journal of the American Medical Association. 1999; 281:545–551.10.1001/jama.281.6.545

Gebo KA, Keruly J, Moore RD. Association of social stress, illicit drug use, and health beliefs with nonadherence to antiretroviral therapy. Journal of General Internal Medicine. 2003; 18:104–111.10.1046/j.1525-1497.2003.10801.x [PubMed: 12542584]

Gifford AL, Bormann JE, Shively MJ, Wright BC, Richman DD, Bozzette SA. Predictors of self-reported adherence and plasma HIV concentrations in patients on multidrug antiretroviral regimens. Journal of Acquired Immune Deficiency Syndromes. 2000; 23:386–395. [PubMed: 10866231]

Gloria AM, Perogy JJ. Counseling Latino alcohol and other substance users/abusers cultural considerations for counselors. Journal of Substance Abuse Treatment. 1996; 13:119–126.10.1016/0740-5472(96)00035-9 [PubMed: 8880669]

Golin CE, Liu H, Hays RD, Miller LG, Beck CK, Ickovics J, et al. A prospective study of predictors of adherence to combination antiretroviral medication. Journal of General Internal Medicine. 2002; 17:756–765.10.1046/j.1525-1497.2002.11214.x [PubMed: 12390551]

González GM, Munoz RF, Perez-Arce P, Batki SL. Depression and HIV disease in injection drug users: A Spanish language feasibility study. Psychology of Addictive Behaviors. 1993; 7:149–154.10.1037/0893-164X.7.3.149

Gonzalez JS, Penedo FJ, Antoni MH, Duran RE, McPherson-Baker S, Ironson G. Social support, positive states of mind, and HIV treatment adherence in men and women living with HIV/AIDS. Health Psychology. 2004; 23:413–418.10.1037/0278-6133.23.4.413 [PubMed: 15264978]

Gordillo V, del Amo J, Soriano V, Gonzalez-Lahoz J. Sociodemographic and psychological variables influencing adherence to antiretroviral therapy. AIDS. 1999; 13:1763–1769.10.1097/00002030-199909100-00021 [PubMed: 10509579]

Grinstead OA, Peterson JL, Faigeles B, Catania JA. Antibody testing and condom use among heterosexual African Americans at risk for HIV infection: The National AIDS Behavioral Surveys. American Journal of Public Health. 1997; 87:857–859. [PubMed: 9184522]

Hasin DS, Goodwin RD, Stinson FS, Grant BF. Epidemiology of major depressive disorder: Results from the national epidemiologic survey on alcoholism and related conditions. Archives of General Psychiatry. 2005; 62:1097–1106.10.1001/archpsyc.62.10.1097 [PubMed: 16203955]

Haubrich RS, Little SJ, Currier JS, Forthal DN, Kemper CA, Beall GN, et al. The value of patient-reported adherence to antiretroviral therapy in predicting virologic and immunologic response. AIDS. 1999; 13:1099–1107.10.1097/00002030-199906180-00014 [PubMed: 10397541]

Henry J. Kaiser Family Foundation. Key facts: Latinos and HIV/AIDS. Menlo Park, CA: Henry J. Kaiser Family Foundation; 2001. http://www.kff.org/content/2001/6008/Latinos%20%20HIV.pdf

Henry J. Kaiser Foundation. State health facts online, Special Data Request from the Centers for Disease Control and Prevention. Washington, DC: 2003.

Herbst JH, Kay LS, Passin WF, Lyles CM, Crepaz N, Marin BV, et al. A systematic review and meta-analysis of behavioral interventions to reduce HIV risk behaviors of Hispanics in the United States and Puerto Rico. AIDS and Behavior. 2007; 11:25–47.10.1007/s10461-006-9151-1 [PubMed: 16917668]

Hirschhorn L, Quinones J, Goldin S, Metras L. Highly active antiretroviral therapy (HAART) in the “real world”: Experiences in an inner-city community health center (CHC). International Conference on AIDS. 1998; 12:587–588.

Holzemer WL, Corless IB, Nokes KM, Turner JG, Brown MA, Powell-Cope GM, et al. Predictors of self-reported adherence in persons living with HIV disease. AIDS Patient Care and STDS. 1999; 13:185–197. [PubMed: 10375267]

Ickovics JR, Hamburger ME, Vlahov D, Schoenbaum EE, Schuman P, Boland RJ, et al. Mortality, CD4 cell count decline, and depressive symptoms among HIV-seropositive women: Longitudinal Analysis from the HIV epidemiology research study. The Journal of American Medical Assosication. 2001; 285:1466–1474.10.1001/jama.285.11.1466

Ingram M, Torres E, Redondo F, Bradford G, Wang C, O’Toole ML. The impact of Promotoras on social support and glycemic control among members of a farmworker community on the US-Mexico Border. Diabetes Educator. 2007; 33:172S–178S.10.1177/0145721707304170 [PubMed: 17620398]

Institute of Medicine. Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care. Washington, DC: National Academies Press; 2002.

Jones DL, Ishii M, LaPerriere A, Stanley H, Antoni M, Ironson G, et al. Influencing medication adherence among women with AIDS. AIDS Care. 2003; 15:463–474.10.1080/0954012031000134700 [PubMed: 14509861]

Kalichman SC. HIV transmission risk behaviors of men and women living with HIV-AIDS: Prevalence, predictors, and emerging clinical interventions. Clinical Psychology: Science and Practice. 2000; 7:32–47.10.1093/clipsy/7.1.32

Kalichman SC, Ramachandran B, Catz S. Adherence to combination antiretroviral therapies in HIV patients of low health literacy. Journal of General Internal Medicine. 1999; 14:267–273.10.1046/j.1525-1497.1999.00334.x [PubMed: 10337035]

Kalichman SC, Rompa D. Functional health literacy is associated with health status and health-related knowledge in people living with HIV-AIDS. Journal of Acquired Immune Deficiency Syndromes. 2000; 25:337–344.10.1097/00126334-200012010-00007 [PubMed: 11114834]

Kelly JA, Kalichman SC. Reinforcement value of unsafe sex as a predictor of condom use and continued HIV/AIDS risk behavior among gay and bisexual men. Health Psychology. 1998; 17:328–335.10.1037/0278-6133.17.4.328 [PubMed: 9697942]

Kirsch, IS.; Jungeblut, A.; Jenkins, L.; Kilstad, A. US Department of Education, Executive Summary. Publication No 065-000-005883. Washington, DC: National Center for Education Statistics; 1993. Adult literacy in America: A first look at the results of the National Adult Literacy Survey.

Kleeberger CA, Phair JP, Strathdee SA, Detels R, Kingsley L, Jacobson LP. Determinants of heterogeneous adherence to HIV-antiretroviral therapies in the multicenter AIDS cohort study. Journal of Acquired Immunie Deficiency Syndromes. 2001; 26:82–92.

Landrine H, Klonoff EA. Culture change and ethnic-minority health behavior: An operant theory of acculturation. Journal of Behavioral Medicine. 2004; 27:527–552.10.1007/s10865-004-0002-0 [PubMed: 15669443]

Landrine H, Klonoff EA, Corral I, Fernandez S, Roesch S. Conceptualizing and measuring ethnic discrimination in health research. Journal of Behavioral Medicine. 2006; 29:79–94.10.1007/s10865-005-9029-0 [PubMed: 16470345]

LaPerriere A, Ironson G, Antoni MH, Stanley H, Jones D, Ishii M, et al. Decreased depression up to one year following CBSM + intervention in depressed women with AIDS: The Smart/EST women's project. Journal of Health Psychology. 2005; 10:223–231.10.1177/1359105305049772 [PubMed: 15723892]

Lara MA, Navarro C, Rubi NA, Mondragon L. Two levels of intervention in low-income women with depressive symptoms: Compliance and programme assessment. International Journal of Social Psychiatry. 2003; 49:43–57.10.1177/0020764003049001542 [PubMed: 12793515]

Latkin CA, Curry AD, Hua W, Davey MA. Direct and indirect associations of neighborhood disorder with drug use and high-risk sexual partners. American Journal of Preventative Medicine. 2007; 32:S234–S241.10.1016/j.amepre.2007.02.023

Lechner S, Antoni MH, Lydston D, LaPerriere A, Ishii M, Devieux J, et al. Cognitive-behavioral interventions improve quality of life in women with AIDS. Journal of Psychosomatic Research. 2003; 54:253–261.10.1016/S0022-3999(02)00480-4 [PubMed: 12614835]

Leserman J, Petitto JM, Golden RN, Gaynes BN, Gu H, Perkins DO, et al. Impact of stressful life events, depression, social support, coping, and cortisol on progression to AIDS. The American Journal of Psychiatry. 2000; 157:1221–1228. [PubMed: 10910783]

Lesser IM, Leuchter AF, Trivedi MH, Davis LL, Wisneiwski SR, Balasubramani GK, et al. Characteristics of insured and noninsured outpatients with depression in STAR(*) D. Psychiatric Services. 2005; 56:995–1004.10.1176/appi.ps.56.8.995 [PubMed: 16088018]

London AS, Driscoll AK. Correlates of HIV/AIDS knowledge among U.S.-born and foreign-born Latinos in the United States. Journal of Immigrant Health. 1999; 1:195–205.10.1023/A:1021811917532 [PubMed: 16228723]

Lucas GM, Cheever LW, Chaisson RW, Moore RD. Detrimental effects of continued illicit drug use on the treatment of HIV-1 infection. Journal of Acquired Immune Deficiency Syndrome. 2001; 27:251–259.

Lucas GM, Gebo KA, Chaisson RE, Moore RD. Longitudinal assessment of the effects of drug and alcohol abuse on HIV-1 treatment outcomes in an urban clinic. AIDS. 2002; 16:767–774.10.1097/00002030-200203290-00012 [PubMed: 11964533]

Lujan J, Ostwald SK, Ortiz M. Promotora diabetes intervention for Mexican Americans. The Diabetes Educator. 2007; 33:660–70.10.1177/0145721707304080 [PubMed: 17684167]

Marín BV. HIV prevention in the Hispanic community: Sex, culture, and empowerment. Journal of Transcultural Nursing. 2003; 14:186–192.10.1177/1043659603014003005 [PubMed: 12861921]

Marín BV, Marin G. Effects of acculturation on knowledge of AIDS and HIV among Latinos. Hispanic Journal of Behavioral Science. 1990; 12:110–121.10.1177/07399863900122002

Marín BV, Tschann JM, Gomez CA, Kegeles SM. Acculturation and gender differences in sexual attitudes and behaviors: Hispanic vs. non-Hispanic white unmarried adults. American Journal of Public Health. 1993; 83:1759–1761. [PubMed: 8259813]

Markowitz JC, Spielman LA, Sullivan M, Fishman B. An exploratory study of ethnicity and psychotherapy outcome among HIV-positive patients with depressive symptoms. Journal of Psychotherapy Practice and Research. 2000; 9:226–231. [PubMed: 11069135]

Martin M, Camargo M, Ramos L, Lauderdale D, Krueger K, Lantos J. The evaluation of a Latino community health worker HIV prevention program. Hispanic Journal of Behavioral Sciences. 2005; 27:371–384.10.1177/0739986305278146

Miller JE, Guarnaccia PJ, Fasina A. AIDS knowledge among Latinos: The roles of language, culture, and socioeconomic status. Journal of Immigrant Health. 2002; 4:63–72.10.1023/A:1014542324401 [PubMed: 16228761]

Millett GA, Peterson JL, Wolitski RJ, Stall R. Greater risk for HIV infection of black men who have sex with men: A critical literature review. American Journal of Public Health. 2006; 96:1007–1019.10.2105/AJPH.2005.066720 [PubMed: 16670223]

Miranda J, Azocar F, Organista K, Dwyer E, Areane P. Treatment of depression among impoverished primary care patients from ethnic minority groups. Psychiatric Services. 2003a; 54:219–225.10.1176/appi.ps.54.2.219 [PubMed: 12556604]

Miranda J, Bernal G, Lau A, Kohn L, Hwang WC, LaFramboise T. State of the science on psychosocial interventions for ethnic minorities. Annual Review of Clinical Psychology. 2005; 1:113–142.10.1146/annurev.clinpsy.1.102803.143822

Miranda J, Chung JY, Green BL, Krupnick J, Siddique J, Revicki DA, et al. Treating depression in predominantly low-income young minority women: A randomized controlled trial. The Journal of the American Medical Association. 2003b; 290:57–65.10.1001/jama.290.1.57

Miranda J, Cooper LA. Disparities in care for depression among primary care patients. Journal of General Internal Medicine. 2004; 19:120–126.10.1111/j.1525-1497.2004.30272.x [PubMed: 15009791]

Miranda J, Schoenbaum M, Cherbourne C, Duan N, Wells K. Effects of primary care depression treatment on minority patients' clinical status and employment. Archives of General Psychiatry. 2004; 61:827–834.10.1001/archpsyc.61.8.827 [PubMed: 15289281]

Molitor F, Kuenneth C, Waltermeyer J, Marisol M, Aguirre A, Brockmann K, et al. Linking HIV-infected persons of color and injection drug users to HIV medical and other services: The California bridge project. AIDS Patient Care and STDs. 2005; 19:406–412.10.1089/apc.2005.19.406 [PubMed: 15989436]

Morales LS, Cunningham WE, Galvan FH, Andersen RM, Nakazono TT, Shapiro MF. Sociodemographic differences in access to care among Hispanic patients who are HIV-positive in the United States. American Journal of Public Health. 2004; 94:1119–1121. [PubMed: 15226129]

Murphy DA, Roberts JK, Hoffman D, Molina A, Lu MC. Barriers and successful strategies to antiretroviral adherence among HIV-positive monolingual Spanish-speaking patients. AIDS Care. 2003; 15:217–230.10.1080/0954012031000068362 [PubMed: 12856343]

Murphy DA, Roberts KJ, Martin DJ, Marelich W, Hoffman D. Barriers to antiretroviral adherence among HIV-positive adults. AIDS Patient Care and STDs. 2000; 14:47–58.10.1089/108729100318127 [PubMed: 12240882]

National Center for Health Statistics. Health, United States. 2005.

National Institutes of Health. NIH guidelines on the inclusion of women and minorities as participants in clinical research. 2000. Retrieved on May 7th, 2007, from http://grants.nih.gov/grants/guide/notice-files/NOT-OD-02-001.html

National Minority AIDS Council. HIV/AIDS & Latinos. 1999.

National Survey on Drug Use and Health. 2006. Retrieved May 7th, 2007, from http://www.oas.samhsa.gov/nhsda.htm

Nyamathi AM, Flaskerud J, Bennett C, Leake B, Lewis C. Evaluation of two AIDS education programs for impoverished Latina women. AIDS Education and Prevention. 1994; 6:296–309. [PubMed: 7986651]

Organista, KC. Cognitive-Behavioral therapy with Latinos and Latinas. In: Hays, PA.; Iwamasa, GY., editors. Culturally responsive cognitive-behavioral therapy: Assessment, practice, and supervision. Washington, DC: American Psychological Association; 2006. p. 73-97.

Organista PB, Organista KC, Soloff PR. Exploring AIDS-related knowledge, attitudes, and behaviors of female Mexican migrant workers. Health and Social Work. 1998; 23:96–103. [PubMed: 9598392]

Padgett DK, Patrick C, Burns BJ, Schlesinger HJ. Ethnicity and the use of outpatient mental health services in a national insured population. American Journal of Public Health. 1994; 84:222–226. [PubMed: 8296944]

Patterson TL, Shaw WS, Semple SJ, Cherner M, McCutchan A, Atkinson JH, et al. Relationship of psychosocial factors to HIV disease progression. Annals of Behavior Medicine. 1996; 18:30–39.

Paterson DL, Swindells S, Mohr J, Brester M, Vergis EN, Squier C, et al. Adherence to protease inhibitor therapy and outcomes in patients with HIV infection. Annals of Internal Medicine. 2000; 133:21–30. [PubMed: 10877736]

PEW Hispanic Center, & Henry J. Kaiser Foundation. National Survey of Latinos. Washington, DC: 2002.

Poppen PJ, Reisen CA, Zea MC, Bianchi FT, Echeverry JJ. Predictors of unprotected anal intercourse among HIV-positive Latino gay and bisexual men. AIDS and Behavior. 2004; 8:379–389.10.1007/s10461-004-7322-5 [PubMed: 15690111]

Power R, Koopman C, Volk J, Israelski DM, Stone L, Chesney MA, et al. Social support, substance use, and denial in relationship to antiretroviral adherence among HIV-positive persons. AIDS Patient Care and STDs. 2003; 17:245–252.10.1089/108729103321655890 [PubMed: 12816618]

Rhodes SD, Eng E, Hergenrather KC, Remnitz IM, Arceo R, Montaño J, et al. Exploring Latino men's HIV risk using community-based participatory research. American Journal of Health Behavior. 2007; 31:146–158. [PubMed: 17269905]

Rhodes SD, Yee LJ, Hergenrather KC. A community-based rapid assessment of HIV behavioural risk disparities within a large sample of gay men in southeastern USA: A comparison of African American, Latino and white men. AIDS Care. 2006; 18:1018–1024.10.1080/09540120600568731 [PubMed: 17012094]

Rios-Ellis, B. Latinos and HIV prevention. Keynote address given for The Dallas HIV/SIDA Coalition Annual Meeting; Dallas, TX. December 2003; 2003.

Robles RR, Reyes JC, Colon HM, Sahai H, Marrero CA, Matos TD, et al. Effects of combined counseling and case management to reduce HIV risk behaviors among Hispanic drug injectors in Puerto Rico. Journal of Substance Abuse Treatment. 2004; 27:145–152.10.1016/j.jsat.2004.06.004 [PubMed: 15450647]

Rosselló J, Bernal G. The efficacy of cognitive-behavioral and interpersonal treatments for depression in Puerto Rican adolescents. Journal of Consulting and Clinical Psychology. 1999; 67:734–745.10.1037/0022-006X.67.5.734 [PubMed: 10535240]

Sabogal F, Faigeles B, Catania JA. Data from the National AIDS Behavioral Surveys. II. Multiple sexual partners among Hispanics in high-risk cities. Family Planning Perspectives. 1993; 25:257–262.10.2307/2136142 [PubMed: 8313950]

Sabogal F, Marín G, Otero-Sabogal R, Marín BV, Perez-Stable EJ. Hispanic familism and acculturation: What changes and what doesn't? Hispanic Journal of Behavioral Science. 1987; 9:397–412.10.1177/07399863870094003

Safren SA, Otto MW, Worth J, Salomon E, Johnson W, Mayer K, et al. Two strategies to increase adherence to HIV antiretroviral medication: Life-Steps and medication monitoring. Behavioural Research and Therapy. 2001; 39:1151–1162.10.1016/S0005-7967(00)00091-7

Sauaia A, Min SJ, Lack D, Apodaca C, Osuna D, Stowe A, et al. Church-based breast cancer screening education: Impact of two approaches on Latinas enrolled in public and private health insurance plans. Preventing Chronic Disease. 2007; 4:A99. [PubMed: 17875274]

Schilling RF, El-Bassel N, Schinke SP, Gordon K, Nichols S. Building skills of recovering women drug users to reduce heterosexual AIDS transmission. Public Health Reports. 1991; 106:297–304. [PubMed: 1905051]

Schraufnagel TJ, Wagner AW, Miranda J, Roy-Byrne PP. Treating minority patients with depression and anxiety: What does the evidence tell us? General Hospital Psychiatry. 2006; 28:27–36.10.1016/j.genhosppsych.2005.07.002 [PubMed: 16377362]

Scott SA, Jorgensen CM, Suarez L. Concerns and dilemmas of Hispanic AIDS information seekers: Spanish-speaking callers to the CDC and national AIDS hotline. Health and Education Behavior. 1998; 25:501–516.10.1177/109019819802500408

Shapiro MF, Morton SC, McCaffrey DF, Senterfitt JW, Fleishman JA, Perlman JF, et al. Variations in the care of HIV-positive adults in the United States: Results from the HIV cost and services utilization study. The Journal of the American Medical Association. 1999; 281:2305–2315.10.1001/jama.281.24.2305

Simoni JM, Frick PA, Huang B. A longitudinal evaluation of a social support model of medication adherence among HIV-positive men and women on antiretroviral therapy. Health Psychology. 2006; 25:74–81.10.1037/0278-6133.25.1.74 [PubMed: 16448300]

Simoni JM, Frick PA, Lockhart D, Liebovitz D. Mediators of social support and antiretroviral adherence among an indigent population in New York City. AIDS Patient Care and STDs. 2002; 16:431–439.10.1089/108729102760330272 [PubMed: 12396695]

Smith DK, Gwinn M, Selik RM, Miller KS, Dean-Gaitor H, Ma'at PI, et al. HIV/AIDS among African Americans: Progress or progression? AIDS. 2000; 14:1237–1248.10.1097/00002030-200006160-00022 [PubMed: 10894289]

Stall R, Purcell DW. Intertwining epidemics: A review of research on substance use among men who have sex with men and its connection to the AIDS epidemic. AIDS and Behavior. 2000; 4:181–192.10.1023/A:1009516608672

Stein MD, Rich JD, Maksad J, Chen MH, Hu P, Sobota M, et al. Adherence to antiretroviral therapy among HIV-positive methadone patients: Effect of ongoing illicit drug use. American Journal of Drug and Alcohol Abuse. 2000; 26:195–201.10.1081/ADA-100100600 [PubMed: 10852356]

Stone, VE.; Steger, KA.; Hirschorn, LR. Access to treatment with protease inhibitor containing regimens: Is it equal for all? [Abstract 42305]. Program and abstracts of the 12th International Conference on AIDS; Geneva. Stockholm: International AIDS Society; 1998.

Strathdee SA, Patterson TL. Behavioral interventions for HIV-positive and HCV-positive drug users. AIDS and Behavior. 2006; 10:115–130. [PubMed: 16463006]

Triandis HC, Marin G, Betancourt H, Lisansky J, Chang BH. *Simpatía* as a cultural script of Hispanics. Journal of Personality and Social Psychology. 1984; 47:1363–1375.10.1037/0022-3514.47.6.1363

Turner BJ, Cunningham WE, Duan N, Andersen RM, Shapiro MF, Bozzette SA, et al. Delayed medical care after diagnosis in US national probability sample of persons infected with human immunodeficiency virus. Archives of Internal Medicine. 2000; 160:2614–2622.10.1001/archinte.160.17.2614 [PubMed: 10999975]

Uldall KK, Palmer NB, Whetten K, Mellins C. HIV Treatment Adherence Health Outcomes Cost Study Group. Adherence in people living with HIV/AIDS, mental illness, and chemical dependency: A review of the literature. AIDS Care. 2004; 16:S71–S96.10.1080/09540120412331315277 [PubMed: 15736823]

United States Bureau of the Census. Resident Population of the United States. 2002. http://www.census.gov

United States Bureau of the Census. Annual estimates of the population by sex, race and Hispanic or Latino origin for the United States: April 1, 2000 to July 1, 2006. 2006. Available at http://www.census.gov/popest/national/asrh/NCEST2006-srh.html

U.S. Department of Health and Human Services. Mental health: Culture, race, and ethnicity: A supplement to mental health: A report of the surgeon general. Rockville, MD: US Dept of Health and Human Services, Public Health Service, Office of the Surgeon General; 2001.

U.S. Department of Health and Human Services. Office of Disease Prevention and Health Promotion. Healthy People 2010. 2002. http://www.health.gov/healthypeople/

van Servellen G, Brown JS, Lombardi E, Herrera G. Health literacy in low-income Latino men and women receiving antiretroviral therapy in community-based treatment centers. AIDS Patient Care and STDs. 2003a; 17:283–298.10.1089/108729103322108166 [PubMed: 12880492]

van Servellen G, Carpio F, Lopez M, Garcia-Teague L, Herrera G, Monterrosa F, et al. Program to enhance health literacy and treatment adherence in low-income HIV-positive Latino men and women. AIDS Patient Care. 2003b; 17:581–594.10.1089/108729103322555971

van Servellen G, Lombardi E. Supportive relationships and medication adherence in HIV-positive low-income Latinos. Western Journal of Nursing Research. 2005; 27:1023–1039.10.1177/0193945905279446 [PubMed: 16275696]

van Servellen G, Nyamathi A, Carpio F, Pearce D, Garcia-Teague L, Herrera G, et al. Effects of a treatment adherence enhancement program on health literacy, patient-provider relationships, and adherence to HAART among low-income HIV-positive Spanish-speaking Latinos. AIDS Patient Care STDS. 2005; 19:745–759.10.1089/apc.2005.19.745 [PubMed: 16283835]

Vargas RB, Cunningham WE. Evolving trends in medical care-coordination for patients with HIV and AIDS. Current HIV/AIDS Reports. 2006; 3:149–153.10.1007/s11904-006-0009-y [PubMed: 17032573]

Walkup J, Blank M, Gonzalez JS, Safren S, Schwartz R, Brown L, et al. Mental health and substance abuse factors having an impact on HIV prevention and treatment. Journal of Acquired Immune Deficiency Syndromes. 2008; 47(S1):S15–S19. [PubMed: 18301129]

Wasserman M, Bender DE, Lee S. Use of preventive maternal and child health services by Latina women: A review of published intervention studies. Medical Care Research & Review. 2007; 64:4–45.10.1177/1077558706296238 [PubMed: 17213456]

Wells K, Klap R, Koike A, Sherbourne C. Ethnic deparities in unmet need for alcoholism, drug abuse, and mental health care. American Journal of Psychiatry. 2001; 158:2027–2032.10.1176/appi.ajp.158.12.2027 [PubMed: 11729020]

Wilson TE, Barron Y, Cohen M. Adherence to antiretroviral therapy and its association with sexual behavior in a national sample of women with human immunodeficiency virus. Clinical Infectious Disease. 2002; 34:529–534.10.1086/338397

Table 1

Intervention studies targeting depression, medication adherence, health literacy, or access to healthcare in Latinos

Study	Sample and methods	Intervention	Major findings	Cultural adaptation
Antoni et al. (2006)	HIV-Positive 130 English-speaking MSM total; 101 with detectable viral loads (20% Latino)	Randomized trial of 10-week CBSM plus medication adherence training (MAT) intervention or MAT only Data collected immediately after randomization, then 9 months and 15 months post randomization	CBSM was found to significantly reduce viral load over a 15-month period after controlling for medication adherence for those who had a detectable viral load at baseline Decreases in depressed mood explain effect of CBSM + MAT on HIV viral load reduction	None reported
Areán et al. (2005)	Non HIV-Positive 1801 older English-speaking multi-ethnic adults (8% Latino)	Multisite randomized trial of collaborative care or treatment as usual Compared ethnic minority participants to white participants on depression severity, quality of life, and mental health service use at baseline, 3, 6, and 12 months post randomization	Compared with care as usual, collaborative care significantly improved rates of depression care for both antidepressant medication and psychotherapy, lowered depression severity, and lowered health-related functional impairment, regardless of ethnicity	None reported
Carrico et al. (2005)	HIV-Positive 49 English-speaking MSM (27% Latino)	Randomized trial of 10 weeks of CBSM or a modified wait-list control condition Data collected at baseline, post-intervention, 6 months, and 12 months post randomization	HIV-positive men in CBSM intervention maintained better social support, reported less dysphoria, and exhibited better immunologic control of latent EBV infection at 12 months	None reported
Carrico et al. (2006)	HIV-positive 130 English-speaking MSM (20% Latino)	Randomized trial of 10 weeks of CBSM + MAT intervention or MAT only Compared participants on self-reported adherence, active cognitive coping, avoidant coping, and depressed mood over the 10-week intervention period	Men in the CBSM + MAT group showed significant reductions in depressed mood and denial coping but no change in active cognitive coping or self-reported adherence	None reported
Comas-Diaz (1981)	Non HIV-positive 26 depressed, low-income, Spanish-speaking Puerto Rican women	Randomized trial of either control, cognitive therapy, or behavior therapy groups All women assessed 1 week after treatment and those in the therapy conditions were also assessed 5 weeks post treatment	Significant reduction in depression for therapy groups compared to control group No significant differences between cognitive and behavioral therapy groups	All assessment instruments translated into Spanish Therapies administered in Spanish Depression behavior rating scale developed to be completed by a significant other
Durán et al. (2006)	HIV-Positive 58 Spanish-speaking Latino MSM	Randomized trial adapting CBSM manualized group intervention for Spanish-speaking adults living with HIV—Adherencia, Relajacion, y Manejo del Estres (ARMESE) Pre- and post-intervention data collected on negative mood states, depression, HIV-risk behaviors, HIV-related symptoms, coping, medication adherence, and viral load	ARMESE was effective in reducing anger, use of maladaptive coping, and reported HIV-related symptoms ARMESE did not influence HIV medication adherence, viral load, social support, depressed mood, or unsafe sexual behaviors	All assessment and intervention materials were translated into Spanish and administered face-to-face by bilingual/bicultural staff Groups led in Spanish by bilingual/bicultural group facilitators
Elder et al. (2000)	Non HIV-positive 732 low-literacy Latino adults attending English as a second language (ESL) courses	Two-group repeated measures design with groups assigned to as many as five 3-hour classes over a 1- to 2-week period of "Language for Health," a heart healthy nutrition intervention or stress management Data collected at baseline, 3 months, and 6 months	At post, the nutrition intervention was more effective than stress management in changing total high-density lipoprotein (HDL) ratio, systolic blood pressure, self-reported fat avoidance, and nutrition knowledge Language for Health effects on nutrition knowledge and fat avoidance were maintained at 6 months. HDL and blood pressure effects were not	The material covered by both groups was designed especially for multicultural adults with limited English proficiency English- and Spanish-speaking staff were available to assist with assessments

Study	Sample and methods	Intervention	Major findings	Cultural adaptation
			maintained due to improvement in those who received stress management by 6 months	Written assessments available in English and Spanish
González et al. (1993)	Some HIV-positive (5 of 11 subjects) 11 Latino Spanish-speaking injection drug users (IDUs) at a San Francisco methadone maintenance clinic	Pilot test of mood management intervention to assess its feasibility and effect on mood, drug use, and high risk behaviors related to HIV Pretest and posttest interviews before and after 6-week mood management course	Feasibility of short-term cognitive-behavioral interventions with a Spanish-speaking sample Intervention moderated depressive symptoms for all patients No significant changes found in drug use or HIV-related high-risk behaviors	Bilingual interviewer and therapist All instruments were administered in Spanish
Ingram et al. (2007)	Non HIV-positive 70 Mexican-American adults with diabetes (86% born in Mexico)	Pre-/post-test evaluation of *Promotora*-driven community-based intervention investigating the relationship between *promotora* contact, perceived support, and clinical outcomes Clinical data collected and questionnaires administered at baseline and 12 months Intervention included phone calls, support group participation, home visits, advocacy or educational contact	Diabetes control improved among high-risk participants. Improved diabetes control was associated with *promotora* advocacy and participation in *promotora*-led support groups Participants reported increased support from family and friends and more comfort speaking about diabetes with family and friends	Intervention designed for Latino population and conducted by members of the Latino community
Jones et al. (2003)	HIV-positive 174 English-speaking women with AIDS (18% Latina)	Randomized trial comparing a 10-session therapist-facilitated cognitive-behavioral stress management plus expressive supportive therapy (CBSM+) group intervention to a non-facilitated informational individual condition Pre- and post-intervention adherence data presented	No significant group by time intervention effects on adherence Authors note that women who were less than 80% adherent improved in self-reported adherence	None reported
LaPerriere et al. (2005)	HIV-positive 154 English-speaking women with AIDS who had a Beck Depression Inventory (BDI) score >10 and were part of a larger randomized sample (16% Latina)	Randomized trial comparing a 10-session therapist-facilitated cognitive behavioral-stress management plus expressive supportive therapy (CBSM+) group intervention to a non-facilitated informational individual condition BDI collected at baseline, post-intervention, 6 months, and 12 months	Significant group by time intervention effect, favoring CBSM+, for decreased BDI total scores and for decreased BDI somatic symptoms over the 12-month follow-up but not for cognitive symptoms A significant dose-response relationship between number of intervention sessions attended and reductions in BDI total scores from baseline to post-intervention and from baseline to one year Depression scores decreased significantly in both conditions over time	None reported
Lara et al. (2003)	Non HIV-positive 254 Mexican women with limited means and depressive symptoms; 93 completed assessments at all time points	Comparison pre-/post-test design of psycho-education or minimum individual condition Data collected at pre-randomization, post-treatment, and at 4 month follow-up assessments	Both conditions effective in motivating participants to engage in self-care activities and to seek further professional help when necessary Participants in intervention condition reported having greater influence on their lives and problems	All assessment and intervention materials were translated into Spanish
Lechner et al. (2003)	HIV-positive 330 English-speaking women with AIDS (16% Latina)	Randomized trial comparing a 10-session therapist-facilitated cognitive behavioral-stress management plus expressive supportive therapy (CBSM+) group intervention to a non-facilitated informational individual condition Pre- and post-intervention quality of life (QOL) data presented	QOL improved significantly in both the CBSM+ and individual groups A significant group by time intervention effect, favoring CBSM+, was found for improved mental health QOL from baseline to post-intervention Eleven additional tests of group by time intervention effects on parameters of QOL were nonsignificant	None reported

Study	Sample and methods	Intervention	Major findings	Cultural adaptation
Lujan et al. (2007)	Non HIV-positive 150 Mexican Americans with type 2 diabetes	Randomized trial of an 8-session intervention led by *promotoras* plus faith-based follow-up reminders versus usual-care control on glycemic control, diabetes knowledge, and diabetes health beliefs Data collected at baseline, 3 months, and 6 months	Diabetes control and diabetes knowledge of the intervention group improved significantly at 6 month follow-up, adjusting for health insurance coverage	Assessment and intervention materials offered in participant's choice of English or Spanish; intervention delivered by bilingual/ bicultural *promotoras*; faith-based follow-up messages congruent to participants' Catholicism
Markowitz et al. (2000)	HIV-positive 101 English-speaking participants with depressive symptoms (21% Latino)	Randomized trial with 4 treatments: interpersonal psychotherapy, CBT, supportive psychotherapy, supportive therapy plus imipramine Data collected at baseline, midpoint (8 week), and just before termination (15 week)	Ethnicity did not moderate the outcome for most treatments One ethnicity-by-treatment interaction was found where African-American subjects assigned to CBT had significantly poorer outcomes than other patients Participants assigned to either interpersonal psychotherapy or supportive psychotherapy with imipramine had significantly greater improvement in depressive symptoms than the other two treatment groups	None reported
Martin et al. (2005)	HIV-positive 704 Latino Spanish-speaking adult immigrants in Chicago with low literacy	Pre-/post-test evaluation of a single session educational intervention administered by *promotoras*	*Promotoras* successfully increased HIV knowledge for all education levels, which was associated with significant changes in self-perceived risk for HIV	Program sessions performed mainly in Spanish *Promotoras* were all Spanish-speaking Latinos (primarily women) Written assessments available in English and Spanish
Miranda et al. (2003)	Non HIV-positive 267 low-income English- and Spanish-speaking women with a current diagnosis of major depression (50% Latina)	Randomized trial of antidepressant medication, psychotherapy intervention (8-week manual-guided CBT), or referral to community mental health services Data collected at baseline, 3, and 6 months	No ethnic differences were found in response to care Both the medication intervention and the CBT intervention reduced depressive symptoms significantly more than the community referral Augmenting the CBT intervention with supplemental case management was shown to improve response for Spanish-speaking patients, but not for English-speaking patients	All measures were read to participants in their preferred language Bilingual providers treated all Spanish-speaking women All written materials, including psychotherapy manuals, were available in Spanish All psychotherapists and nurse practitioners had extensive experience with treating low-income and minority patients
Miranda et al. (2003)	Non HIV-positive 199 English-and Spanish-speaking multi-ethnic participants with depression; 77 participants spoke Spanish as their first language (all but 5 were foreign-born); 122 spoke English as their first language (none of whom were Latino)	Randomized trial of cognitive-behavioral group therapy or cognitive-behavioral group therapy with supplemental case management Data collected at baseline, 4, and 6 months	All patients who received supplemental case management had lower dropout rates than those who received cognitive-behavioral group therapy alone Supplemental case management was associated with greater improvement in symptoms and functioning for patients whose first language was Spanish but was less effective for those whose first language was English	All measures were available in Spanish Bilingual and bicultural providers were available for the Spanish-speaking patients Staff was trained to show *respeto* and *simpatia* to Spanish-speaking patients
Miranda et al. (2004)	Non HIV-positive 1356 English- and Spanish-speaking adults with depression (19% Latino)	Randomized trial of usual care, quality improvement (QI) intervention with medications, and QI intervention with therapy Data collected at baseline and 6 months	Minority patients who received appropriate care had lower rates of probable depressive disorder than those who did not receive it While nonminority patients who received appropriate care were found to have higher rates of	Experts in mental health interventions for minorities participated in designing QI materials

Study	Sample and methods	Intervention	Major findings	Cultural adaptation
			employment than those who did not receive it, the same was not true for minority patients	All QI intervention materials were available in English and Spanish Multi-ethnic providers were included in videotaped materials for patients Information regarding cultural beliefs and ways of overcoming barriers to care for minorities were included in provider training materials Materials provided to improve psychotherapy for depression were developed for ethnically diverse patients
Molitor et al. (2005)	HIV-positive 1453 men and women of color and injection drug users from the California Bridge Project	Population-based intervention using peer-based outreach staff to provide assessments and referrals to 1453 people living with HIV but without routine care	Nearly 50% of Latinos and 41% of IDUs received services at a California Early Intervention Program (EIP) after date of first contact with peer staff IDU clients less likely to be referred to EIP and more likely to be referred to other community programs Programs that address immediate needs such as housing are more appealing to IDUs than programs offering HIV medical care	40 of 42 staff members were persons of color, 60% spoke fluent Spanish, 36% HIV-positive, and 24% former substance users
Rosselló and Bernal (1999)	Non HIV-positive 71 Puerto Rican adolescents with diagnosis of depression	Randomized trial of cognitive-behavioral therapy (CBT), interpersonal psychotherapy (IPT), or wait-list (WL) Data collected at baseline, post treatment, and 3 months	IPT and CBT groups showed significantly reduced depressive symptoms compared to WL group 89% of adolescents in IPT and 52% in CBT were functional after treatment	The CBT intervention was based on a model that has been used with Hispanic adults Therapists were sensitive to the important Latino cultural value of *familialismo*. Parents were interviewed before and after therapy and ancillary meetings were offered if necessary
Sauaia et al. (2007)	Non HIV-positive 213 Colorado Catholic churches	Non-randomized comparison of mammogram rates for Latinas in zip codes exposed to a *promotora* intervention versus printed intervention Data collected at baseline and 2-year follow-up	Mammogram rate for Latinas in *promotora*-exposed zip codes was significantly higher than in printed intervention zip codes after adjusting for age, income, urban location, disability, and insurance type	Both *promotora* intervention and printed intervention were offered in English and Spanish Value of *familialismo* was incorporated into the printed intervention
van Servellen et al. (2005)	HIV-positive 85 Spanish-speaking, low-income, low-literacy Latino men and women	Randomized trial of 5-week instructional support intervention or comparison group Data collected at baseline, 6 weeks, and 6 months 6-month follow-up nurse case management component	Health literacy increased in intervention group relative to comparison group; maintained at 6 months Intervention group showed improvements in relationships with health care providers and communications with medical staff No significant differences in medication adherence between groups	Culturally and linguistically appropriate content and skills training provided to participants in intervention group *Familialismo, simpatia, machismo/marianismo* values were incorporated into the development of the intervention Families were encouraged to participate in the first and final sessions