Systematic Review of Behavioral Prevention Interventions to Prevent HIV Infection in Communities of Color

Lynae A. Darbes, Ph.D.
University of California, San Francisco
Departments of Epidemiology and Biostatistics & Medicine
Center for AIDS Prevention Studies
Cochrane Collaborative Review Group on HIV/AIDS

Gail E. Kennedy, M.P.H.
University of California, San Francisco
Department of Epidemiology and Biostatistics
Cochrane Collaborative Review Group on HIV/AIDS

George W. Rutherford, M.D.
University of California, San Francisco
Department of Epidemiology & Biostatistics
Cochrane Collaborative Review Group on HIV/AIDS
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Direct correspondence to Ms. Kennedy at Center for AIDS Prevention Studies, University of California, San Francisco, 74 New Montgomery Street, Suite 508, San Francisco, California 94105-3444 or gkennedy@psg.ucsf.edu

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EXECUTIVE SUMMARY

We conducted a systematic review of the HIV prevention intervention literature for communities of color (African-American, Latino, Asian-American and American Indians/Alaskan Natives) in the United States since 2001, an update of previous reviews we conducted (Darbes, Kennedy, Peersman, Zohrabyan and Rutherford, 2001a,b,c). We systematically and comprehensively searched the literature to identify the best evidence for effective and rigorously tested HIV prevention interventions designed specifically for these populations. We developed a standard set of inclusion and exclusion criteria based on the methodological quality of the study, and our ability to extract information specific to people of color. Following a rigorous search of the literature and an application of our inclusion criteria, we identified a total of 15 studies of the highest methodological quality (randomized controlled trials [RCT]). We identified six studies that focused exclusively on African-American participants and three studies that focused on Latino participants. We did not identify any trials specifically focused on Asian Americans or American Indians/Alaska Natives. We identified two studies that had at least 80% African-American participants in their studies, and four studies in which separate analyses were conducted for people of color in their samples.

Interventions with positive results shared similar qualities. The methodologically strongest intervention studies were grounded in theory, provided the participants with skills training, and were culturally sensitive to the unique needs of the participants of color. Examples of positive outcomes included increasing condom use, decreasing the number of sexual partners, and increasing self-efficacy for protective behavior. All of these outcomes are associated with decreasing HIV infection. The relative paucity of interventions for these population is striking given that people of color represent the group most at risk for HIV infection in the U.S. We
found some evidence that interventions aimed toward decreasing HIV risk infections in people of color can be successful. However, people of color confront unique social and psychological risks for HIV. It was encouraging that most interventions have taken into account the broader social issues identified in empirical studies as predictors of HIV risk behavior in people of color. Thus, future epidemiological, behavioral and intervention research targeting people of color should incorporate strategies that address specific social factors in order to prevent further HIV infections from occurring. In addition, we could have included more studies if researchers had conducted separate statistical analyses for the participants of color in their samples. We recommend that future researchers utilize this technique when disseminating their findings.
INTRODUCTION

Although we are in the third decade of the HIV pandemic, there is still no cure or vaccine. At this time, behavioral risk prevention interventions remain among the principal means for deterring the further spread of HIV. Thus, developing and implementing interventions that focus on behavioral prevention are of utmost importance.

Although the scope of the epidemic has reached into most segments of U.S. society, its disparity continues to be striking. Recent statistics have demonstrated that there is a significant over-representation of people of color among new HIV infections. For example, while African Americans comprise approximately 12 percent of the U.S. population, they represented over half of the newly diagnosed HIV cases in the U.S. in 2001 (CDC, 2001). Similarly, the epidemic has had a similar disproportionate effect on Latinos in that U.S. Latinos represent approximately 13% of the U.S. population, yet comprised 19% of the newly diagnosed AIDS cases in 2000 (CDC, 2000).

HIV/AIDS among African Americans

Disproportionate rates of HIV/AIDS among African Americans can be traced to the very first stages of the epidemic. As early as 1982, African Americans were found to comprise 23% of the cases reported, while comprising only 12% of the entire U.S. population (CDC, 1982; US. Census, 1980). This trend has continued, and worsened. Recent statistics show that over 50% of newly reported HIV infections are occurring among African Americans (CDC, 2000) although they still only comprise approximately 12% of the U.S. population (U.S. Census, 2000).

This overrepresentation of African Americans is consistent across the major behavioral risk groups for HIV infection (men who have sex with men (MSM), injection drug users (IDU), heterosexuals, youth/adolescents. African Americans comprise 31% of the cases of HIV infec-
tions and 35% of the cases of AIDS that have been reported among MSM since the beginning of
the epidemic. In addition, a CDC study of MSM in New York found that 33% of men testing
positive for HIV were African American (Torian et al., 2001). This same figure was also re-

Injection drug use accounts for 32% of the AIDS cases and 16% of the HIV cases for Af-
rican-American men cumulatively through 2003 (CDC, 2005). For African-American women,
the comparable figures are 37% of AIDS cases and 15% of HIV cases for the same time period.

Heterosexual contact is the leading source of infection in African-American women, ac-
counting for 40% of cumulative HIV cases and 38% of cumulative AIDS cases (CDC, 2002).
Although heterosexual contact accounts for 11% of cumulative cases of HIV infection and 8% of
the cumulative AIDS cases among African-American men, the rates are higher than those among
Whites and Latinos (CDC, 2002). Heterosexual transmission of HIV is even more pronounced
in younger age groups of African Americans. Among 13-24 year olds African Americans 61%
of reported AIDS diagnoses between 1998-2002 were acquired heterosexually (CDC, 2002), and
50% of both HIV and AIDS cases were acquired through heterosexual contact among African-
American adolescent and adult women in this age group (CDC, 2002). These statistics under-
score the necessity and importance for identifying effective HIV prevention interventions aimed
at African Americans.

**HIV/AIDS Among Latinos**

Latinos have also been disproportionately impacted by the HIV epidemic. Similar to
conditions described for African Americans, a strong disparity has also been evident for Latinos
since the first reports of AIDS (National Minority AIDS Council [NMAC], 1999). This over-
representation of Latinos is consistent across the major behavioral risk groups for HIV infection
(MSM, IDU, heterosexuals and youth/adolescents). For example, a CDC study of MSM in New York found that 14% of men testing positive for HIV were Latino (Torian et al, 2001). Through 2003, Latinos accounted for 19% of total AIDS cases and 19% of total AIDS cases among women. For 2003, Latino adults and adolescents comprised 20% of reported AIDS cases (CDC, 2005). However, as of the 2000 Census, Latinos represent only 12.5% of the U.S. population.

The AIDS case rate for Latino men is almost three times that for white non-Hispanic men (National Center for Health Statistics, 1997). Latinos are also a diverse group, encompassing multi-generational Americans and immigrants from countries or commonwealths such as Mexico, Puerto Rico, Cuba and the Dominican Republic. These cultural differences among Latinos may make prevention efforts more complicated. For example, efforts may need to be targeted to different sub-groups, given the complexity of cultural groups within the Latino population. Furthermore, the Latino population is younger, of lower socioeconomic status and less educated than the U.S. population as a whole (Kaiser Family Foundation, 1998), which may place it at increased risk for HIV. A potential language barrier also exists, which may also hinder prevention efforts. These factors underscore the necessity for examining evidence for prevention interventions aimed at Latinos.

However, differences in risk are also present within the Latino population itself. In terms of general population demographics, Mexican Americans comprise the largest sub-group of Latinos in the U.S. (57%). Puerto Ricans are the second largest sub-group representing 20% of Latinos (including those residing in Puerto Rico). Latinos who are born outside of the U.S. may have different behavioral risk factors than Latinos born in the U.S.
HIV/AIDS among Asians and Pacific Islanders

Asians and Pacific Islanders represent the fastest growing ethnic community in the U.S. (U.S. Census, 2000). At approximately 13 million people, currently Asian Americans and Pacific Islanders comprise 5% of the U.S. population (people who identify themselves as Asian or Asian in combination with one or more other races) (U.S. Census, 2000). As of 2003, 27% of the foreign-born population in the U.S. was from Asia (Population Resource Center, 2005). Forty-one percent of the Asian-born population in the U.S. arrived between 1990-2000 (Population Resource Center, 2005). Chinese, Filipinos and Asian Indians represent the largest sub-groups of Asians in the U.S.. Pacific Islanders (including native Hawaiians, Guamanians, and Samoans) represent 0.1% of the U.S. population. Three states (California, New York and Hawaii) contain over half of the API population in the U.S. (U.S. Census Bureau, 2002).

In addition, Asians and Pacific Islanders are a diverse group, comprised of multi-generational Americans and immigrants from countries such as Vietnam, the Philippines, India and China. The cultural differences among Asians and Pacific Islanders may make prevention efforts more complicated, as efforts may need to be targeted for different sub-groups. Furthermore, even though the Asian and Pacific Islanders population has a higher education level than the U.S. population as a whole and a similar median income, the poverty rate is double that of White families (NMAC, 1999), which may place some at increased risk for HIV. Language barriers may also exist, which may also hinder prevention efforts. These factors underscore the necessity for examining evidence for prevention interventions for Asians and Pacific Islanders.

Asians and Pacific Islanders have consistently represented approximately 1% of AIDS cases in the United States (CDC, 2000). Most cases (63%) have been among MSM (CDC, 2000). However, several states categorize Asians and Pacific Islanders as “other” in their racial
categories. This condition may contribute to a potential underestimation of Asian and Pacific Islanders HIV/AIDS cases. In California, Asian and Pacific Islanders represent 2% of the cumulative number of reported AIDS cases and 3% of the cumulative number of reported HIV cases among MSM through October, 2004.

**HIV/AIDS among American Indians and Alaska Natives**

There are approximately 2.5 million American Indians and Alaska Natives living in the U.S., comprising 1.5% of the U.S. population (U.S. Census, 2000). Over 40% of American Indians and Alaska Natives live in the western region of the U.S. (Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming). California and Oklahoma account for approximately 25% of the total American Indian population, and ten states (including California and Oklahoma) account for over half of all AI in the U.S. Of locations in the U.S. with more than 100,000 people, New York and Los Angeles contain the largest American Indian populations (U.S. Census, 2002). Overall, there are over 500 American Indian tribes represented in the U.S. (U.S. Department of Interior, 2002). The tribes with the most numbers of people are: Cherokee, Navajo, Latin American Indian, Choctaw, Sioux, and Chippewa. For Alaska Natives, Eskimo was the largest tribal grouping, followed by Tlingit-Haida, Alaska Athabascan, and Aleut (U.S. Census, 2002). In California, American Indians and Alaska Natives represent 1% of the population.

Among all HIV/AIDS cases that are attributed to male-to-male sexual contact, approximately 1% are American Indian and Alaska Native men. Male-to-male sexual contact accounts for approximately 60% of all American Indian and Alaska Native AIDS cases (through 2003) (CDC, 2005). This proportion of cases attributable to male-to-male contact is higher than that for Latino or African-American men. In addition, the infection rate (11.7 per 100,000) for
American Indians and Alaska Natives is 1.5 times higher than that of Whites and double that of Asians and Pacific Islanders (Anonymous, 2004). In California, American Indians and Alaska Natives comprise 0.35% of cumulative AIDS and 0.47% of HIV cases among MSM through 2004.

Although the actual number of cases of HIV and AIDS appear low, it is possible that the official figures may not be an accurate representation of the level of HIV infection among American Indians and Alaska Natives. First, issues pertaining to racial misidentification and misclassification for individuals of American Indians and Alaska Natives can occur. For example, over 60% of American Indians reside in non-tribal lands, which might make identification difficult. In addition, high migration rates (e.g., between rural and urban communities) can influence whether or not people are identified by traditional surveillance methods (Ashman, Perez-Jimenez, and Marconi, 2004). Another factor is that HIV infection may not occur evenly between the geographically diverse tribes and current methods are not able to identify differences in distribution between individual tribes. Small tribes may not be included in official records, and the small numbers of cases in the American Indian and Alaska Native community might influence the stability of estimates of HIV/AIDS cases (Bertolli et al., 2004).

Another factor that may contribute to the current low numbers of HIV cases among American Indians and Alaska Natives is that of low rates of testing for HIV. It has been proposed that in some rural communities, American Indians and Alaska Natives may be hesitant to participate in HIV testing due to fears of a lack of confidentiality in small communities (Bertolli et al., 2004).

In sum, communities of color represent a significant proportion of those affected by the HIV epidemic. This review will focus on those HIV prevention interventions specifically de-
signed and conducted for the racial and ethnic communities listed above and provide recommendations for health departments and community-based organizations who may be interested in designing interventions aimed toward stemming the trend of HIV infection in these communities as well as researchers working with these groups. This review is based on the research literature and, therefore, does not claim to represent formative research or programmatic work that may currently be ongoing in community-based organizations or through health departments. We acknowledge that many communities of color are being reached by such programs, but our goal was to summarize and systematically review rigorous evaluative research conducted specifically within these populations.
REVIEW OF INTERVENTIONS WITH COMMUNITIES OF COLOR

OBJECTIVES

The objectives of this review were threefold:

1. To locate and describe available high-quality outcome studies evaluating the effects of behavioral, social and policy prevention interventions for HIV in communities of color in the U.S.
2. To undertake a critical review of these studies,
3. To summarize the effectiveness of these interventions and identify the best evidence of effective interventions for future research, policy, and practice priorities and directions.

METHOD

Criteria for Including Studies in This Review

Types of studies

We included studies that evaluated the effects of behavioral, social, or policy interventions on at least one outcome measure related to HIV transmission. We include only randomized controlled trials as this is the most rigorous evaluative research design and decreases the likelihood of biases introduced.

Types of participants

We included the following:

1. Studies comprised of 100% participants of color (comprised of ethnic/racial communities such as African-American, Latino, Asian/Pacific Islander and American Indian/Alaskan Native) in their samples.
2. Studies comprised of at least 80% participants of one racial/ethnic community, e.g., 85% African-American.)

3. Studies comprised of less than 100% participants of color in their samples with separate analyses reported for each racial/ethnic community. This was necessary to understand the impact of the intervention on different study populations.

**Types of interventions**

We studied three types of interventions:

**Behavioral interventions**: These are interventions that aim to change individual behaviors only without explicit or direct attempts to change the norms of the community or the target population as a whole.

**Social interventions**: These are interventions that aim to change individual behaviors through changing social or peer norms. Social interventions include strategies such as community mobilization, diffusion, building networks, and structural and resource support.

**Policy interventions**: These are interventions that aim to change individual behavior or peer/social norms or structures through changes to administrative policies or legal or regulatory actions. An example would be condom availability in public settings.

**Types of outcome measures**

Studies that reported any type of outcome measure related to HIV transmission (including self-reported risk behavior, and biological outcomes such as HIV or sexually transmitted infections) were included.
Search Strategy for Identification of Studies

We conducted systematic, comprehensive searches for relevant studies on electronic databases, through handsearching key journals and conference proceedings, by scanning reference lists of reports of relevant outcome evaluation studies and reviews, and by directly contacting researchers/research organizations. The main aim was to identify published and unpublished reports of outcome evaluation studies of HIV/AIDS behavioral prevention interventions targeting racial/ethnic minority populations in the USA (African American, Latino, Asian/Pacific Islander and American Indian/Alaskan Native). Studies conducted between September 2001 and April 2005 were identified from searches on AIDSLINE, the Cochrane Controlled Trials Register, MEDLINE, PsycINFO, and Sociofile. Previous reviews identified studies up through 2000, and the current report is an update of those prior findings. For each of these databases, sensitive search strategies were developed consisting of both controlled vocabulary terms (where available) and free text terms.

Methods of the Review

Studies were reviewed for relevance based on types of participants, interventions, outcome measures, and study design.

Full reports were obtained for all relevant outcome evaluation studies and a standardized coding strategy was developed to describe the key characteristics of each of these studies in terms of the city where the study was conducted, the type of intervention, the target population, age of the study population, sex of the study population, percent race/ethnicity, intervention setting, intervention components, research design, and types of outcomes.

Two independent reviewers abstracted appropriate information using a standardized data abstraction form. Information retrieved from the studies included details of the intervention, and
other study characteristics. Any disagreements were resolved between the two reviewers, and when necessary, with a third party.

**Methodological quality of included studies**

Quality of the studies was assessed in several ways, which took into account our inclusion criteria and methods used in previous systematic reviews, including our prior review of prevention interventions in communities of color (e.g., Darbes et al., 2001). We focused on four criteria, which we deemed most appropriate for the types of studies included in this review: randomization, attrition, protection against contamination, and the training/make up of the facilitators of the intervention (Cochrane Effective Practice and Organization of Care Review Group (EPOC), 1998). The criteria were assessed in the following ways:

*Randomization* was assessed according to the standards of the Cochrane Collaboration (2000). If the method of randomization was clearly described (e.g. the use of random number tables or coin flips), the study was given full credit for this category (2 points). If the study merely mentioned the word “random” but did not give an adequate description, it received partial credit for this category (1 point). If the authors did not give any description or described using such allocation methods as a day of the week or dates of birth, the study did not get credit for this category.

If *attrition* was less than 20% of the subjects randomized, the study was given full credit for this category (1 point). If more than 20% of attrition occurred or if the information regarding attrition was unclear, the study did not receive credit.

If proper methods were utilized to protect against any *contamination* of the intervention, (the possibility that participants in different groups could have significant contact with each other, thereby adversely affecting the integrity of the intervention) the study received full credit.
for this category (1 point). If proper methods were not taken or if the methods taken were unclear, the study did not receive full credit. If the study design did not warrant a need to protect against contamination, this criterion was not used, and the study could receive a maximum of four points.

If the study included information regarding the training or makeup of the facilitators, credit was given to the study for this category (1 point). If this description was not included, credit was not given. (Unless the study does not warrant a need to address facilitators, then this issue is not applicable).

Studies that received 75%-100% of points possible were deemed “good” studies, studies that received 50%-75% of points possible scored “fair”, and studies that received less than 50% of possible points scored were rated as having significant methodological limitations. This method of assessing quality by number of limitations has been used by the Center for Disease Control and Prevention’s Task Force on Community Preventive Services (Briss, 2000).

RESULTS

Search Results and Description of Studies

Our original search yielded 121 citations (see Figure 1). After initial screening for relevance, forty-three studies remained. Overall, fifteen studies with ethnic minority participants met our inclusion criteria, five from AIDSLINE; thirteen from MEDLINE; and twelve from psycINFO (as some studies were identified through more than one source, figures equal more than total number of studies). All of the interventions described in the accompanying tables are randomized controlled trials. Table 1 includes all studies with MSM of color (both studies that
have 100% MSM of color participants and those that conducted separate analyses for MSM of color). Table 2 includes interventions with drug users of color. Table 3 includes interventions with heterosexual participants of color. Table 4 includes interventions with adolescent participants of color.

Of the fifteen studies identified (see Figure 2), nine of them included participants with 100% representation in one race/ethnic group in their samples. Of the nine studies that focused exclusively on one ethnic group six studies focused exclusively on African Americans and three focused on Latinos (one was conducted in Puerto Rico). Four studies were identified that reported separate analyses for the participants of color. An additional two studies contained more than 80% African-American participants. Detailed descriptions of the included studies are included in Tables 1-4.

We did not identify any studies that met our criteria that focused on Asian Americans, Pacific Islanders, American Indians, or Alaska Natives or that performed separate analysis for participants from these ethnicities.

Twenty-eight studies were excluded from this review either for not meeting our methodological criteria or for having a sample comprised of less than 80% participants of color with no separate analyses conducted for those participants. Specifically, seven studies were excluded due to not being randomized controlled trials, fifteen studies were excluded due to having less than 80% of one ethnic minority group with no separate analyses for participants of color and five studies were excluded due to not reporting on differences between intervention groups in their results (or they combined control and intervention participants in their analyses).
Studies that focused on MSM of color

We identified two studies that focused on MSM (see Table 1 for details). The first was conducted with 180 Latino MSM in New York City (Carballo-Dieguez et al., 2005). The intervention participants received eight 2-hour weekly sessions compared to a wait-list control. Although the intervention was culturally tailored and theoretically grounded, the investigators reported no differences between the intervention group and wait-list control participants in frequency of unprotected anal intercourse. However, it should be noted that both groups demonstrated reductions in frequency of unprotected anal intercourse (for example, at the first follow-up, 46% of intervention participants had not engaged in any instances of UAI in the previous two months, whereas 54% of the control participants also reported not engaging in any instances of UAI).

The investigators looked for possible reasons for their lack of findings, but were unable to identify any possible sources of bias or influence. For example, they examined whether factors such as time spent in community-based activities could have been a factor (if men from both intervention and control groups had such participation) but found no group differences. They also investigated whether the number of sessions that participants attended was a factor, and again, found no significant influence of this on intervention participants. Other types of sexual risk differences were examined such as differences between insertive vs. receptive anal intercourse, frequency of paid sexual occasions, and frequency of UAI with one-night stands; however no group differences were found.

Overall this was a well-designed and executed trial, but the lack of positive findings underscores the need for additional high-quality trials with Latino gay men. The authors describe the participants as reporting high levels of self-efficacy and intentions to engage in safe sex.
They also discuss how selection bias and the extensive baseline interview could have contributed to the lack of any significant group differences. The authors offer a final caution regarding design of future trials: they recommend that future research employ a randomized controlled design, as the lack of a control group would have led them to believe that their intervention was responsible for the positive changes that they observed in their participants’ rates of UAI. Future research should follow this recommendation, as well as continue to develop and test the effect of interventions that are developed specifically for Latino gay men.

The second study that focused on MSM was comprised of a multi-ethnic sample (n=103) (Picciano et al., 2001). Participants were White (76%), African-American (7%), Latino (6%), Asian-American (3%), American Indian or Alaska Native (1%), and 7% were described as “other”. The intervention was delivered completely via the telephone. There were two groups, one who received counseling (based on Motivational Interviewing) and a delayed treatment group. Following completion of the intervention, the authors reported that the intervention had a significant protective effect on the participants of color but not for the White participants (all men of color were grouped together, given the small numbers so the comparison was Whites to men of color). No ethnic differences were found for any other sexual behavior (e.g., number of partners).

Of the two studies that we identified, only one reported that it significantly and positively affected HIV risk behavior for MSM of color. However, both studies were given our highest quality rating, so it would seem that the lack of findings was not due to poor methodology. In addition, even though the studies we identified did not produce strong results, this could be an indication of the complexity involved in altering sexual risk behavior among MSM of color. Current non-intervention studies examining both the context and the predictors of HIV risk behavior
among MSM of color (e.g., Chng, Wong, Park, Edberg, and Lai, 2003; Diaz, Ayala, and Bein, 2004; Mays, Cochran, and Zamudio, 2004) should contribute to the design of future interventions. It may be necessary to utilize several different approaches along a spectrum ranging from individual to community-based interventions. Taking the vast array of contexts (e.g., cultural, environmental and behavioral) in which MSM of color engage in risk behavior into consideration is of paramount importance. Rather than attempting to simplify and design “one size fits all” interventions, it appears that the complexity inherent in the sexual behavior of MSM of color must be addressed. Additional research targeting diverse communities of MSM is necessary in order to better understand the context and predictors of HIV risk behavior in the communities in which it is occurring; this should be a priority at scientific, institutional, and policy levels.

Given our review, we provide the following recommendations. First, it is recommended that reports of interventions with negative findings be published. It is important to learn from interventions with null results as well as from trials with significant results. Second, we encourage researchers to conduct separate analysis for men of color in their samples (even to combine information from participants of color e.g., Picciano et al., 2001). For example, we were unable to include findings from the large, multi-site RCT EXPLORE study of MSM, as the authors did not report on separate analyses for men of color in the sample (The Explore Study Team, 2004). Third, it may be worthwhile to investigate alternative intervention deliveries, such as over the telephone, in terms of feasibility for future interventions. Finally, we recommend that future interventions with MSM utilize theoretical foundations and deliver their interventions over multiple sessions.
Studies with Drug Users of color

We identified four studies that targeted people of color whose drug use increases their risk for HIV infection (see Table 2 for details). Two studies focused on injection drug users (one with 94% African-American participants and one with 100% Latino participants) and two focused on women who use crack cocaine (both with 100% African-American participants).

The two studies with injection drug users (Latkin et al., 2003; Robles et al., 2004) both produced positive results in terms of reducing injection behavior and the sharing of needles in intervention participants. Robles and his colleagues (2004) also reported that their intervention participants were more likely to enter drug treatment and also reported increased self-efficacy regarding needle-sharing (the authors did not report on any changes in sexual behavior in participants). Latkin and his colleagues (2003) reported that in addition to positive results pertaining to injection behavior that their intervention participants were also significantly more likely to use condoms with casual partners than control group participants. However, there were no group differences in condom use with primary partners. These findings are consistent with our earlier review (Darbes et al., 2001) which found that changing the sexual behavior of injection drug users appears to be more challenging than altering their injection behavior. Both of these interventions utilized skills training, which appeared to contribute to the positive results.

Both of the interventions which focused on African-American, crack-using women produced positive results (Sterk et al., 2003a; Wechsberg et al., 2004). Both studies reported significant changes in drug use and sexual risk behavior. The two interventions compared a standardized intervention to an enhanced intervention design. Sterk (2003a) and her colleagues utilized two intervention groups, one focused on improving negotiation skills and the other focused on improving motivation, then compared these to a standard National Institute of Drug Abuse
(NIDA) intervention. Wechsberg and her colleagues (2004) utilized a standard NIDA intervention\(^1\) compared to a “woman-focused” intervention, and compared both to a delayed-treatment control. In both studies, the authors report significant results from the enhanced interventions when compared to standard NIDA intervention. The authors report that both drug use and sexual behaviors were positively changed. Both of these studies used detailed theoretical frameworks and were tailored specifically for crack-using African-American women. The positive results of these studies are encouraging, and future studies should employ similar tactics with comparable populations.

The results of Wechsberg (2004) and Sterk (2003) are indicative of enhanced interventions being successful. The intervention groups received interventions which placed an emphasis on issues pertaining to African-American women. It is significant that these interventions were more successful with regard to changing drug use and sexual risk behavior when compared to a standard NIDA intervention. These results are an improvement over findings from our prior review (Darbes et al., 2001) which found positive results for altering drug use behavior, but fewer positive results for altering sexual risk behavior of drug users. Unfortunately, Robles and his colleagues (2004) did not measure changes in sexual risk behavior in their participants. Latkin and his colleagues (2003) also reported some positive changes in sexual behavior of their intervention participants, but it was only observed with casual partners and not with primary partners. However, this result is consistent with findings from samples of MSM (e.g., Theodore, Duran, Antoni and Fernandez, 2004) and heterosexuals (e.g., Rosengard, et al., 2005) who also have found differing results for different partner types.

\(^{\text{1}}\) NIDA interventions are standardized interventions developed by the National Institute of Drug Abuse of the National Institute of Health aimed to reduce HIV risk by changing sexual and drug use behaviors (NIDA, 1992).
Ongoing trials in the field are continuing to focus on African-American and Latino communities (see Table 5, Ongoing Studies). We were unable to identify any trials that focused on, or had substantial numbers of Asian Americans, American Indians, or Alaska Natives. Future studies should continue to build on these positive findings and to tailor their interventions for the specific population that they are targeting. In addition, researchers should attempt to conduct separate analyses for the participants of color in their samples in order to identify any possible intervention effects for these participants.

Studies with heterosexual participants of color

We identified five studies that focused on heterosexual participants of color (See Table 3 for details). One of the studies focused exclusively on African-American women (St. Lawrence et al., 2001), one was comprised of 80% African-American women (Robinson et al., 2002), one focused exclusively on African-American men (Maher et al., 2003), and two focused on couples, one with exclusively Latinas (Harvey et al., 2004), and one with both Latinas and African-American women (El-Bassel et al., 2003).

St. Lawrence and her colleagues reported on the results of an intervention that compared three theoretically-based intervention groups to a wait-list control group. All of the intervention groups produced significant and positive changes with regard to sexual risk behavior (e.g., condom use) compared to the control. The differential focus of the intervention groups produced some variation, but overall, all were effective. However, the authors point out that although significant behavior change was noted in the intervention participants, it was still not at a sufficient level to be considered protective. This sample differed from previous samples of high-risk African-American women in that the women would be considered relatively low-risk by their own behavior (e.g. they did not have multiple partners), and their risk primarily came from the behav-
ior of their partners (e.g., partners reported multiple partners, high frequency of unprotected sex, etc.). It is important to note that women were more likely to improve their condom use with casual partners than with primary partners.

One study focused exclusively on attempting to reduce the sexual risk behavior of African-American male STI clinic patients. The authors compared a 3-session intervention to the routine counseling available at the clinic. Their outcome was incidence of sexually-transmitted infections at 1-year follow-up. The authors reported no differences between the two groups with regard to STI incidence. The lack of outcomes for this trial could have been influenced by the extremely low rates of participation following randomization in the intervention sessions and by the lack of scheduled assessments which could have resulted in asymptomatic infections being missed.

Robinson and her colleagues reported on the result of a study that was primarily comprised (80%) of African-American women. The intervention was culturally tailored, theoretically based, and was delivered over an intensive 2-day group session. Intervention participants were compared to control participants who did not receive any type of intervention. At follow-up, no differences were found between intervention and control participants on any sexual risk behaviors, condom attitudes or safer sex self-efficacy. It is possible that the high amount of attrition contributed to the lack of findings, combined with low statistical power. The authors also examined the findings for only the African-American participants and the results remained the same.

Two studies focused on reducing HIV risk behavior among heterosexual couples. One study (Harvey et al., 2004) was conducted with 146 couples in Los Angeles. All of the women were Latina, and over 90% of the men were Latino. The intervention was designed to be specifically used with Latino couples. The intervention group received 3 sessions of over 2 hours each
and the comparison group received two total hours of intervention. The intervention was delivered in the preferred language of the participant, and was actually delivered in either all English, all Spanish, or a combination of both. At three-month follow-up, there were no differences between the intervention and comparison groups in use of condoms, but both intervention and control group participants reported a significant decrease in unprotected sexual acts and an increase in consistent condom use. The lack of group differences could have been influenced by high attrition. However, the couples-based approach is an innovative one, and future interventions should attempt to replicate and improve the intervention outcomes.

El-Bassel and her colleagues reported on findings of the first randomized controlled trial for heterosexual couples in Bronx, New York. The sample was comprised of 217 couples, of whom over 50% were African-American and approximately 40% were Latino. The authors sought to compare whether there were differences in delivery between having both partners of the couple participate in the intervention or just the women. Each of these two approaches were delivered in six 2-hour sessions. These two theoretically-based interventions were compared to a one session 1-hour control group for women alone. At 3-month follow-up, both intervention groups improved significantly with regard to the number of protected sexual episodes and the percent of protected sexual acts compared to the control group. There were no differences in outcome between the groups where both partners received the intervention compared to only the female partners receiving the intervention. This may be important for the feasibility of future interventions as only women may need to participate, which may be easier than recruiting both members of a couple.

Out of the five studies we reviewed that focused on heterosexual behavior, two did not produce any significant group differences (Robinson et al., 2002; Maher et al., 2003), and one
reported positive changes in both groups, but no differences between intervention and control group (Harvey et al., 2004). All of these studies reported high levels of attrition, which could have contributed to the null results. However, the quality of the studies were good, and had strong components such as a strong theoretical foundation (Robinson et al., 2002) and a biological outcome measure (Maher et al., 2003). St. Lawrence and her colleagues (2001) report on the results of a theoretically grounded intervention that produced positive changes in relatively low-risk women. They commented that future interventions should focus on partners, and El-Bassel’s (2003) findings demonstrate that perhaps intervening with women alone (who are part of heterosexual couples) can be successful. With the exception of Maher et al (2003), all of the interventions utilized a strong theoretical foundation and were tailored specifically for their population of interest. We recommend that future interventions also utilize these techniques, but might need to also focus on strategies to effectively retain participants throughout the intervention. In addition, planning and recruiting for sufficient numbers of participants is important in order to ensure an adequate sample size to attain sufficient statistical power as well as to counteract the possibility that attrition could negatively impact the ability to detect significant changes between groups.

**Studies with adolescent participants of color**

We identified four studies that focused on adolescents and their potential risk of HIV infection (see Table 4 for details). Two of the studies focused exclusively on African Americans (one with boys, DeLamater, 2000; and one with girls, DiClemente et al., 2004). One study of adolescent girls was comprised of 60% African Americans and 40% Latinas (Jemmott et al., 2005). The final study was school-based, and was comprised of a multi-ethnic sample (27% La-
tino, 18% Asian Americans, 17% African Americans) and the authors reported on separate analyses for ethnic groups (Kirby et al., 2004).

The majority of studies reported significant positive changes in sexual behavior in the adolescents in their samples. For example, DiClemente and his colleagues (2004) reported that their intervention participants were more likely to report consistent condom use at all follow-up periods (baseline to six months, six months to twelve months, and baseline to twelve months). In addition, intervention participants were less likely to report that they were pregnant, and less likely to have reported a new sex partner in the past 30 days. The authors also investigated presence of STI at follow-up, and intervention participants had significantly fewer Chlamydia infections, but there were no group differences in either gonorrhea or trichomonas infections at 12-month follow-up. This study had several strengths in that it was based in theory (social cognitive theory), had a biological outcome, and a significant follow-up period (up to twelve months).

Jemmott and his colleagues also conducted an intervention with adolescent females that was based on social cognitive theory, had a twelve-month follow-up period, and measured a biological outcome. They tested differences between two interventions that differed only in that one included the provision of skills training while the other did not. Both of these groups were also compared to a health-promotion control. At shorter follow-up periods (3- and 6-month) there were few significant group differences. However, at 12-month follow-up, participants in the skills-based group reported significantly fewer episodes of unprotected intercourse, fewer partners, and were less likely to have had an STI. The authors also examined differences between the Latina and African-American participants and found that there were no differences in sexual behavior outcomes or STI rates, but they did have some differences with regard to cognitive variables such as attitudes and beliefs.
DeLamater (2000) compared the mode of delivery for an intervention targeted toward African-American adolescent males recruited from STI clinics. Standard clinical care was compared to either an intervention delivered by a health educator in an individual session or by a video-taped intervention (both were 14 minute in length). At 6-month follow-up, all intervention groups were more likely to report improved behaviors (e.g., consistent condom use) but there were no group differences.

Kirby and his colleagues (2004) conducted a school-based intervention, based in social cognitive theory, with 9th and 10th graders. Students who participated in the intervention reported significant reductions in their frequency of unprotected sex and increases in condom use. However, intervention participants did not report significant delays in their initiation of sexual intercourse. There were some gender differences with the intervention having a stronger effect on males versus females for outcomes involving condom use. There were some ethnic differences in outcomes, such that although there was not an overall significant impact on delaying the initiation of sexual intercourse, there was a significant impact on the sexual initiation for Latino students. With regard to condom use outcomes, the intervention was more successful in positively changing this behavior for Latino and White students than for African-American students. Finally, the authors suggest that strategies for positive sexual changes differed by race. Specifically, African-American students reduced their sexual risk by reducing their number of unprotected sexual partners. Latino students decrease their sexual risk by delaying the initiation of sexual intercourse as well as by increasing condom and contraceptive use. Finally, White students decreased their risk by increasing condom use.

In general, the interventions with adolescents of color were very successful in improving the participants sexual risk behavior. They were methodologically strong, and two of them (Di-
Clemente et al., 2004 and Jemmott et al., 2005) followed-up on behavior changes for up to twelve months after the baseline assessment. The positive results garnered from these studies bode well for future development and implementation of interventions utilizing the same techniques.

**DISCUSSION**

Communities of color are at increased risk for HIV infection. We have reviewed 15 high quality, well designed and well executed studies that reported on interventions specifically aimed towards preventing HIV among communities of color. The highest number of the studies focused on heterosexuals (n=5), followed by adolescents (n=4), IDU (n=4), and MSM (n=2), respectively.

Of the 15 studies we reviewed, two thirds (10/15) demonstrated significant levels of behavior change following an intervention aimed towards decreasing HIV risk behavior. This demonstrates that behavioral prevention interventions can have a positive impact on behavior change. Condom use was the most frequent behavioral outcome used to examine risk, along with number of partners, and frequency of unprotected intercourse. Although ten of fifteen studies demonstrated significant change, that does not always mean that there was significant change between intervention and control group participants, which is a more rigorous indicator of intervention success. Using this criteria, over half (8/15) studies reported significant differences between intervention and control group at follow-up periods. These studies focused on all population types, e.g., MSM, drug users, heterosexuals, and adolescents.

However, many of the outcomes were not assessed after a 3-month follow-up. It is impossible to discern the lasting impact of interventions for studies that reported positive behavior
change but did not incorporate longer follow-up periods. However, we are encouraged by the presence of a few studies that followed behavior for up to 12 months post-baseline. Furthermore, positive changes were still being detected at this assessment (e.g., DiClemente et al., 2004). We are intrigued by the results reported by Jemmott and his colleagues (2005) in which the positive changes reported by intervention participants were only noted at the twelve-month follow-up period, whereas they had not detected any group differences at either the 3- or 6-month follow-up period. It is unknown whether similar results would be found in other samples.

Components of Effective Interventions

Certain components were present in the majority of interventions that achieved positive behavioral changes. These included: skills training, cultural sensitivity, gender sensitivity, and interventions that were longer in length (by both time and/or sessions). When the differential effects of these components were tested (e.g. a “woman-focused” intervention vs. a standard intervention) they are reported in the individual descriptions of the studies in the tables. However, general statements can be made regarding these components.

1) We were encouraged to find that two thirds (10/15) of the interventions were specifically tailored to reflect needs and/or specific characteristics for the community that the intervention was targeting. This demonstrates a higher proportion than was found in our prior reviews (Darbes et al., 2001a, Darbes et al., 2001b). For example, some studies altered more traditional prevention messages to be more relevant to the African American community, and had African American facilitators (e.g., Robinson et al., 2002; DiClemente et al., 2005). Others were designed with extensive development in the Latino community (e.g., Carballo-Díeguez et al., 2005; Harvey et al., 2004). When culturally sensitive interventions were compared with less culturally relevant interventions, the more culturally
sensitive intervention often (but not always) produced more positive behavior change (e.g., Wechsberg et al., 2004; DiClemente et al., 2005).

2) Interventions that were delivered over more than one session and/or were longer in duration in general had more positive effects than interventions that were brief. This finding is consistent with our prior reviews. The cognitive changes (e.g., altering one’s perception of risk for HIV infection) necessary to effect significant behavior change (e.g., reducing sexual risk behavior) need time to incorporate the new information (Kalichman et al, 1996). Providing information only once may not be sufficient to change unsafe behaviors that have been in place for years. We found some conflicting information regarding intensive interventions (e.g., interventions that were comprised of several hours, but given over shorter duration, 1-2 days). For example, Robinson and her colleagues (2002) conducted their intervention with African-American women over the course of a weekend, but reported no group differences at follow-up. In contrast, Jemmott and his colleagues (2005) conducted their intervention with African-American and Latina adolescents in a similar format, but did report positive outcomes. Further research may be needed in order to determine whether or not this format can be recommended. This is important from a feasibility perspective, as it may be easier to recruit and maintain participants over a shorter, more intense time frame. However, other evidence demonstrates that there may be an optimal length of interventions; interventions that are too brief may not produce significant and/or longstanding change. Interventions comprised of three to five sessions appear to balance the need to provide multiple sessions, achieve positive effects, and remain feasible (e.g, Latkin et al., 2003; Sterk et al., 2003a; DiClemente et al., 2004).
(3) Skills training was an important component of the majority of the interventions described in this review (13/15). The only two studies that did not incorporate skills training into their implementation were the two studies conducted with MSM (Carballo-Dieeguez, et al., 2005 and Picciano et al., 2001). Although having skills training as a component was not a guarantee of positive change, it was present in all of the successful interventions. Skills training took many forms. For example, some interventions provided their participants with training in negotiation and communication skills (typically for women, for whom condom use is not under their control, e.g., Sterk et al., 2003a), while others provided training in the application and use of condoms (e.g., Jemmott et al., 2005; St. Lawrence et al., 2001). Skills training can also be useful for reducing risk associated with drug use such as cleaning needles following use. Skills training falls into the framework of cognitive behavioral theory (Bandura, 1994) which is the theoretical basis for most of the interventions described. Cognitive behavioral theory proposes that skills training facilitates behavior change through the demonstration and practicing of new skills, which will increase the likelihood of adaptation and mastery of new behaviors. We continue to recommend skills training be included in future prevention interventions as it appears to be an important component and increases the likelihood of success.

Gaps in Research

We identified the following gaps in evaluative research. We identified only one well-conducted intervention that specifically targeted MSM of color (Carballo-Dieeguez et al., 2005), and one study in which results for MSM of color were analyzed separately (Picciano et al., 2001). As discussed in the introduction, this is a group that remains at high risk for infection, and has not necessarily been effected or reached by the substantial prevention efforts aimed at
White gay men. Studies that specifically focus on this population should be an immediate research priority. However, we are aware that there are several interventions for MSM of color that are currently in the field, and look forward to the results of these trials (see Table 5 for ongoing studies).

Although adolescents, as a group, have been well studied, we found no studies that specifically focused on gay-identified youth of color. It is not known whether various intervention components would differentially impact gay-identified youth compared to heterosexual youth. This would be an important issue to investigate in future intervention studies. In addition, it would be important to conduct interventions aiming to change the HIV risk behavior of homeless and runaway youth of color. We recognize that it may be difficult to recruit and maintain samples of homeless and runaway youth in research studies. Therefore, any future studies conducted with ethnically mixed samples should conduct separate analysis for participants of color.

We did not identify any studies that focused on HIV prevention interventions for Asian Americans or Pacific Islanders that met our criteria. Furthermore, most of the studies examining predictors of HIV risk behavior in Asian Americans and Pacific Islanders have focused on MSM populations (e.g., Choi et al., 2002; Choi et al., 2004). However, there are RCTs currently in the field (see Table 5).

A comprehensive model for guiding HIV prevention efforts among Asian and Pacific Islander MSM was described by Chng and colleagues (Chng, Wong, Park, Edberg & Lai, 2003). The primary components of the model are comprised of several domains. The first domain is that of how patterns (e.g., gender roles, sexual risk practices, drug use, and attitudes about sexuality) associated with the home country are incorporated into lifestyles in the U.S.. There is much variability across Asian and Pacific Islander culture regarding sexuality and drug use, and
this diversity needs to be considered. The second domain revolves around the migration experience. Again, this experience can differ widely depending on country of origin, and the timing and process of migration can influence different circumstances once in the new society. Migrant communities are often overlooked in HIV prevention, due to difficulty in accessing them. However, extra effort should be exerted in order to identify unique factors for recent migrants with regards to the contextual factors that may place them at risk for HIV. The final domain concerns the U.S. experience, including the acculturation process. It is imperative for HIV prevention activities to reach those both more and less acculturated to the U.S. The model emphasizes the importance of acknowledging cultural factors and contexts relevant to HIV prevention in the Asian and Pacific Islander MSM community. It appears that current efforts to both examine predictors of HIV risk behavior and to intervene to positively impact any risk behavior are taking into account the complexity of the lives of Asian and Pacific Islander MSM (e.g., Choi, Han, Hudes and Kegeles, 2002; Nemoto et al., 2003).

We were unable to identify any studies that met our criteria that examined HIV risk behavior among American Indians and Alaska Natives. In reviewing the literature for the American Indian and Alaska Native population in general, it appears that there are several conditions that are associated with increased HIV risk behavior that may be a factor for some American Indian and Alaska Native individuals. In a review of HIV prevention for American Indians and Alaska Natives, Duran and Walters (2004) identified the following as being associated with the likelihood of increased HIV infection: 1) the American Indian and Alaska Native community has disproportionate levels of economic, demographic and health risk factors; 2) American Indian and Alaska Natives have been observed to have low levels of condom use and high rates of sexually transmitted infections; 3) American Indians and Alaska Natives have high levels of sub-
stance use (including increasing injection drug use) and elevated alcohol use compared to the general population; and 4) there is evidence of elevated rates of unprotected sex and inconsistent condom use. It has been recommended that future intervention efforts with American Indians and Alaska Natives will need to be developed in conjunction with specific communities and will need to incorporate aspects of American Indian and Alaska Native traditions in order to be effective (Duran and Walters, 2004; Vernon and Jumper-Thurman, 2002).

A final gap in the research is that of allowing for sufficient time for follow-up. Although many of these interventions were conducted with hard-to-reach --and thus hard-to-follow-- populations, longer periods of follow-up are necessary in order to determine whether or not effective behavior change has occurred (Marin, 1995). Studies that include period of follow-up of a minimum of 6 months should be emphasized.

CONCLUSION

In sum, we have reviewed 15 high quality, well-designed interventions aimed towards reducing the risk of HIV infection for communities of color in the U.S. We organized the review by various populations that the interventions targeted (MSM, injection drug users, heterosexuals, and youth/adolescents). We reviewed evidence for interventions in which people of color comprised 100% of the participants, for those studies that contained any proportion of people of color and also conducted separate analyses for those participants, and studies in which one ethnic group comprised at least 80% of the sample. We also applied inclusion criteria to the studies by including only the most rigorously designed studies (RCTs) and using standardized quality ratings to assess the quality of the included studies.

We found some consistencies across studies that produced positive results. These interventions were typically grounded in theory, provided the participants with skills training, were
culturally sensitive to the unique needs of the community that they were targeting, and were conducted over multiple sessions and longer periods of time. Examples of positive outcomes were increasing condom use, decreasing the number of sexual partners, decreasing sharing of needles, increasing self-efficacy for protective behavior, and improving communication with partners regarding safer sexual practices. All of these outcomes are associated with decreasing HIV infection. In general, the studies were of high methodological quality. Significant attrition was a common limitation, but not surprising, as the groups targeted tend to be extremely difficult to retain in research studies over long periods of time. We described a striking gap in the literature, where although MSM of color are one of the groups most at risk for HIV infection, we identified only one study specifically targeted toward this group. Implementing additional interventions in this community are an urgent priority.

**Changes from Prior Reviews**

Compared to our previous reviews (Darbes et al., 2001a, Darbes et al., 2001b, Darbes et al., 2001c), we identified the following changes. There was a significantly higher proportion of studies focusing on African-American heterosexual women (one third) in the current review. Heterosexual contact is the source of 42% of the cumulative number of AIDS cases in African-American women through 2003. However, there were far fewer studies that focused on heterosexual African-American men (only 1, Maher et al., 2003). There was also only one study in the current review that specifically focused on African-American injection drug users (Latkin et al., 2003), another source of a significant proportion (over 30%) of AIDS cases among African Americans. As we noted, we did not identify any studies of African-American MSM. To our knowledge, the intervention conducted by Peterson and his colleagues (1996) which we described in our previous review remains the only RCT targeting this population. Interventions
with African-American adolescents continued to have positive results (e.g., DiClemente et al., 2004).

Proportionately, there were more numbers of studies that were comprised exclusively of Latino participants. We identified one study of Latino MSM, whereas our prior review identified no trials with this population. However, this trial (Carballo-Díezquez et al., 2005) did not produce positive results (although the methodological quality was good). We only identified one study of Latino injection drug users, which was located in Puerto Rico. Our prior review included only two similar studies, covering the period of 1985-2000, a much longer time than the present review. We identified two studies that focused on Latino heterosexuals, the same as the prior review, but again, this review covers a much shorter search period. Both of these studies intervened with couples, which is an intervention approach not seen in our prior reviews. Unlike our prior review, we did not identify any interventions specifically aimed towards Latino adolescents.

Our prior review (Darbes et al., 2001c) only identified two studies with Asian Americans and/or Pacific Islanders as participants (one MSM and one heterosexual). The current review did not identify any studies with Asian Americans or Pacific Islanders. We did not identify any interventions with American Indians or Alaska Natives in either review.

In terms of methodology, we identified more interventions in the current review that utilized longer follow-up periods (e.g., up to 12 months post-baseline). In addition, proportionately more studies utilized biological outcomes such as monitoring incidence of STI infections. Finally, a higher proportion of the interventions in the current review utilized social cognitive theories and, as mentioned above, were specifically tailored towards the population of interest.
Recommendations

Given our findings of this review, we continue to make similar recommendations to our previous reviews. It appears that these factors have been consistent predictors of positive change in the context of behavioral HIV prevention interventions.

Our recommendations are as follows:

(1) Culturally sensitive interventions facilitate risk reduction, and future interventions that are aimed toward participants of color should take the unique needs of the particular community into account.

(2) Skills training produces positive reductions in HIV risk behavior, and should be included in future interventions. This includes practical skills training such as the correct use of a condom, but also encompasses techniques such as improving communication skills regarding negotiating safer sex practices.

(3) Interventions should be theoretically based, and programs that have been grounded in cognitive-behavioral theory have produced the most consistent positive results.

(4) Interventions should be designed with more than one session (but not necessarily more time) as they positively impact behavior change. Although this might appear less cost-effective on the surface, it will improve the likelihood that behavior change will be maintained over longer periods of time.

Our recommendations to investigators planning research interventions continue to be:

1) Adequate sample sizes should be obtained in order that the chances of discerning the effects of the intervention are increased (greater statistical power). Many well designed
and implemented studies that reported null results could have been improved by increasing their sample sizes.

2) Researchers should attempt to conduct separate analyses for participants of color in their samples. This would improve the ability to make specific conclusions for how interventions may differentially impact participants of color.

3) Studies should attempt to measure behavior change over long periods of time (at least six months) in order to determine whether behavior changes were maintained over long periods of time.

4) Ideally, behavioral prevention interventions should attempt to demonstrate connections to biological outcomes, when feasible (e.g. sexually transmitted disease re-infection and/or HIV sero-conversion).

As we enter the third decade of the AIDS epidemic, communities of color continue to be at increased risk for HIV infection. However, this review demonstrates that effective approaches and techniques have been developed that are successful in reducing the HIV risk behavior in these communities. The implementation of interventions that we know to be successful should be a priority, and is one of our best weapons in the fight against HIV/AIDS.
Information about the Appendices

We attach several appendices to this report in order to provide additional information. Appendix I lists the bibliographic citations for the interventions included in this review. It also contains a list of citations for papers which conducted additional analyses on the interventions described in this review. Appendix II lists bibliographic citations for randomized controlled trials with less than 80% participants of color, which excluded them from inclusion in this review. Appendix III lists bibliographic information for interventions focused on HIV-positive participants, which were also excluded from this review. Inclusion on this list does not mean that there are necessarily a high percentage of participants of color in the samples. Appendix IV lists interventions with a significant percentage of participants of color, but which are not randomized controlled trials. We did not include these trials as we wanted to focus our findings on the “best evidence”. However, the information in these trials may be of interest to others designing interventions in community-based settings. Finally, Appendix V lists background articles that relate to HIV prevention. Some of the articles are methodologically focused, others are focused on particular populations. The information could be useful for planning future interventions and for general information.
References


http://www.prcdc.org/holiday/asianamfactsheet%202005.html

come, urban, primarily African American women: Results of a randomized controlled trial. AIDS Education & Prevention. 14(Suppl3), 81-96.


http://www.census.gov

http://www.census.gov


## Description of Studies with Participants of Color

### Table 1
Intervention Studies with 100% MSM of color

<table>
<thead>
<tr>
<th>First Author</th>
<th>Location</th>
<th>N</th>
<th>Design</th>
<th>Intervention</th>
<th>Results</th>
<th>Matching</th>
<th>Limitations</th>
<th>Theory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carballo-Díeguez</td>
<td>New York, NY</td>
<td>N=180 100% male</td>
<td>RCT</td>
<td>Themes of sessions included: Oppression, Transgression of rules, Excuses/rationales, Substance use, Goal setting, Role of pleasure, Self-efficacy, Plans for future, Participants kept a sexual diary, Cultural components (e.g., cultural norms)</td>
<td>No differences between intervention and control group in frequency of unprotected anal intercourse, although both groups showed significant improvement, Lack of difference was not due to outside influence such as time spent in community-based activities, nor was there any dose effect due to number of sessions attended for intervention participants</td>
<td>Ethnicity, Gender, Sexual orientation</td>
<td>No control intervention</td>
<td>Empowerment, Paulo Freire’s liberation theory</td>
</tr>
</tbody>
</table>

- Matching
- Limitations
- Theory
## Studies with separate analyses for MSM of color

<table>
<thead>
<tr>
<th>First Author</th>
<th>Location</th>
<th>N</th>
<th>Design</th>
<th>Intervention</th>
<th>Results</th>
<th>Matching</th>
<th>Limitations</th>
<th>Theory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Picciano (2001) “good” quality study</td>
<td>Seattle, WA</td>
<td>N=103 (baseline)</td>
<td>RCT</td>
<td>All activities conducted over the telephone. 2 groups: 1) Immediate counseling 2) Delayed counseling Following 90-minute assessment interview, participants in immediate counseling condition were scheduled for a 90-120 minute counseling session, and a 90-minute follow-up assessment for 6 weeks later. Participants in delayed condition were scheduled for the initial session after 7 weeks. Intervention was based on motivational interviewing, and telephone counselors reinforced any mention of statements that indicated motivation for safer sex practices. Participants were given feedback on their sexual practices relative to community norms. Was NOT oriented towards specifically providing risk reduction counseling.</td>
<td>Found significant protective effect of the counseling on unprotected anal intercourse for men of color (compared Whites to men of color, no separate analysis by ethnicity). This result was NOT found for White participants. No ethnic differences were found for any other sexual behavior (e.g., number of partners).</td>
<td>Groups were randomized to ensure equality between groups in terms of ethnicity, risk behavior and partner status</td>
<td>Small sample size</td>
<td>Motivational Interviewing (Miller and Rollnick, 1991)</td>
</tr>
</tbody>
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## Table 2
### Studies with drug users of color

<table>
<thead>
<tr>
<th>First Author</th>
<th>Location</th>
<th>N</th>
<th>Design</th>
<th>Intervention</th>
<th>Results</th>
<th>Matching</th>
<th>Limitations</th>
<th>Theory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Latkin (2003)</td>
<td>Baltimore, MD</td>
<td>N=250 94% African-American 66% used cocaine or opiates</td>
<td>RCT</td>
<td>Peer education Information Skills training Referrals Risk reduction materials 2 groups: Multi-session intervention group --10 90-minute small group sessions --harm reduction focus --enhance participants perception of community membershipEqual-attention control group --same number of sessions and duration as intervention group --initial session covered basic HIV prevention information --subsequent sessions featured a video-tape that discussed addiction and family dynamics</td>
<td>At 6-month follow-up: --intervention participants were 3 times more likely than control participants to have stopped injection drug use and to have reduced sharing needles (analyses adjusted for age, gender, race, education, arrest history, HIV status and mood) --intervention participants were more likely to use condoms with casual partners than control group participants --no group differences were found for condom use with main partners</td>
<td></td>
<td></td>
<td>Social Identity Theory Social influence theory</td>
</tr>
<tr>
<td>First Author</td>
<td>Location</td>
<td>N</td>
<td>Design</td>
<td>Intervention</td>
<td>Results</td>
<td>Matching</td>
<td>Limitations</td>
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<tr>
<td>Sterk (2003a)</td>
<td>Atlanta, GA</td>
<td>N=265</td>
<td>RCT</td>
<td>HIV-testing and counseling Information Skills Training Culturally tailored</td>
<td>--Only participants in 2 enhanced intervention groups reported significantly fewer times using crack in last 30 days. --Women in 2 enhanced groups also reported significant reduction in number of partners (among those who had reported at least one paying partner during follow-up), and significant reduction in frequency of having a paying partner. --Women in 2 enhanced groups reported significant increase in communication with casual partners. --Negotiation and motivation conditions produced different results. For example, women in negotiation condition reported greater increase in condom use with steady vaginal sex partners, but reported engaging in more frequent crack use associated with sex (compared to motivation condition). --all groups reported increases in frequency of male condom use with all types of partners</td>
<td></td>
<td></td>
<td>Social Cognitive Theory of Reasoned Action Theory of Planned Behavior Stages of Change Theory of gender and power</td>
</tr>
</tbody>
</table>
### Systematic Review of Interventions to Prevent HIV Infection in Communities of Color

| **Wechsberg (2004)** | **North Carolina** | **N=762**  
100% female  
100% African-American  
All participants were out-of-treatment and used crack cocaine. | **RCT**  
**HIV testing and counseling**  
Information  
Referrals  
Risk reduction materials  
Skills training  
Culturally Tailored  
Motivation  
Empowerment  
Coping Skills  
3 groups  
--Enhanced Intervention (woman focused)  
--Standard Intervention (based on standard NIDA intervention)  
--Control (delayed treatment)  
Both Enhanced and Standard intervention groups had 4 sessions: 2 group and 2 individual | **At 3-month follow-up, participants in both intervention groups reported significantly**  
--fewer days of crack use  
("women-focused" had greatest reduction)  
--less episodes of unprotected sex in last 30 days  
--fewer episodes of trading sex for drugs or money  
Only participants in the "women-focused" intervention had significantly more women who were employed full time and less women who were homeless at 3-month follow-up.  
Only "women-focused" participants had significantly fewer episodes of unprotected sex compared to controls at 6-month follow-up.  
At 6-month follow-up, standard intervention participants continued to have significantly less crack use compared to controls, and results for "women-focused" participants were marginally significant. | **Gender Ethnicity**  
African-American feminism | **Empowerment Theory**  
African-American feminism |

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*Notes:
- "good" quality study
- RCT*
<table>
<thead>
<tr>
<th>Study</th>
<th>Location</th>
<th>Sample Size</th>
<th>Intervention Details</th>
<th>Outcome Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Robles (2004)</td>
<td>Vega Baja, Puerto Rico</td>
<td>N=557, 100% Latino (Puerto Ricans)</td>
<td>RCT</td>
<td>HIV-testing and counseling, Information Referrals, Risk Reduction materials, Services (case management), Skills Training</td>
</tr>
</tbody>
</table>

**Ethnicity** No sex behavior outcome **Motivational Interviewing**
### Table 3
**Studies with Heterosexual participants of color**

<table>
<thead>
<tr>
<th>First Author</th>
<th>Location</th>
<th>N</th>
<th>Design</th>
<th>Intervention</th>
<th>Results</th>
<th>Matching</th>
<th>Limitations</th>
<th>Theory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Robinson (2002)</td>
<td>Minneapolis-St. Paul</td>
<td>218</td>
<td>RCT</td>
<td>Culturally tailored referrals, Information, Skills training, Risk reduction materials</td>
<td>No differences were found between intervention and control group on sexual risk behaviors, condom attitudes or safer sex self-efficacy.</td>
<td>High attrition</td>
<td>Gender, High attrition (sample reduced from 218 to 156 at 3-month follow-up and 122 at 9 month follow-up)</td>
<td>Sexual Health Model</td>
</tr>
<tr>
<td></td>
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<td>(computer-generated numbers table)</td>
<td>Intervention delivered in intensive 2 day group session. Control group did not receive any intervention.</td>
<td>Conducted all analyses for African-American participants separately, did not change results from full sample.</td>
<td></td>
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</tbody>
</table>

Robinson (2002) is a "good" quality study.
St. Lawrence (2001) “good” quality study

<table>
<thead>
<tr>
<th>Location</th>
<th>N=445</th>
<th>Gender</th>
<th>RCT</th>
<th>Intervention/Description</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mississippi</td>
<td>100%</td>
<td>100%</td>
<td>RCT</td>
<td>Information, Peer education, Skills Training, Culturally Tailored</td>
<td>4 groups (3 intervention groups, 1 wait-list control) -- all intervention groups were comprised of 6 weekly sessions of 90-120 minute duration -- 3 intervention groups varied by theoretical foundation: 1) Theory of Gender and Power 2) Social Learning Theory 3) Cognitive Behavior Modification -- First 2 sessions of all 3 intervention groups were identical -- latter sessions were similar in content, but differed in mode of delivery and types of activities -- Theory of Gender and Power groups did not have skill observation or skills practice -- Social Learning theory group entailed skills observation but not skill practice -- cognitive behavioral modification group had both skill observation and skill practice -- At post-test, regardless of intervention group, intervention participants significantly increased their proportion of episodes of vaginal intercourse that were protected compared to the control group. -- For intervention groups only, across 6- and 12-month follow-up there were no group differences, but all groups demonstrated significant increase in condom-protected intercourse (increased at 6-month follow-up, decreased slightly at 12-month follow-up). -- Other intervention group findings showed that intervention groups improved compared to control with regard to condom use intentions and self-efficacy across intervention groups outperformed control participants in skill assessments related to sexual negotiation -- Theory of Gender and Power participants were less able to perform correct condom application than participants from other two intervention groups -- women were more likely to use condoms in new relationship (with new partners) than in the context of on-going relationships -- magnitude of change for condom use was statistically significant, however, % of women who reported using condoms was still relatively low (this trial differs from other trials in being with low-risk women</td>
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</table>
Systematic Review of Interventions to Prevent HIV Infection in Communities of Color

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th>whose risk for HIV primarily is due to their partner's behavior.</th>
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</table>

9
<table>
<thead>
<tr>
<th>Study</th>
<th>Location</th>
<th>Sample Size</th>
<th>Study Design</th>
<th>Intervention</th>
<th>Outcome Measures</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maher (2003)</td>
<td>Miami, FL</td>
<td>N=581</td>
<td>RCT</td>
<td>Counseling Information Skills Training Empowerment Culturally Tailored 2 groups: 1. routine counseling 2. 3 session enhanced counseling (individual sessions, approximately 1 hour each) Passive follow-up: Clinic records were reviewed for subsequent diagnoses of STD</td>
<td>No differences between two groups in 1 year follow-up incidence of STD</td>
<td>Gender Ethnicity Low participation in intervention groups (38% did not attend any session, 17% attended one, 8% attended two, 38% attended all three) No scheduled assessments, could have missed asymptomatic infections</td>
</tr>
<tr>
<td>El-Bassel (2003)</td>
<td>Bronx, NY</td>
<td>N=217 couples</td>
<td>RCT</td>
<td>HIV-testing and counseling Skills training Information 3 groups: 1. 6 sessions (2 hours) for couples together (1 individual and 5 couples) 2. same 6 sessions for woman partner alone 3. 1 session (1 hour) control condition for women alone</td>
<td>Both intervention groups produced significant improvements in the number of protected sexual acts and % of protected sexual acts compared to control group at 3-month follow-up. There were no significant differences between intervention groups (couples vs. women alone) for outcomes.</td>
<td>Gender Relatively short follow-up period.</td>
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<tr>
<td></td>
<td></td>
<td>100% of women Latino, over 90% of men Latino</td>
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<tr>
<td>RCT</td>
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<tr>
<td>2 groups, delivered in English only, Spanish only, or combination of both, as preferred by participant:</td>
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<tr>
<td>1. 3 sessions (2.5 hours each)</td>
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<tr>
<td>2. Comparison group (2 hours total)</td>
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<tr>
<td>No differences between groups in use of condoms, but both groups reported significant decrease in unprotected sexual acts, and increase in consistent condom use at 3-month follow-up.</td>
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</tr>
<tr>
<td>Gender Ethnicity</td>
<td>High attrition</td>
<td>Information-Motivation Behavioral Skills Model</td>
<td>Fishbein’s Integrated Behavior Change Model</td>
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</tr>
</tbody>
</table>
### Table 4
Studies with adolescent participants of color

<table>
<thead>
<tr>
<th>First Author</th>
<th>Location</th>
<th>N</th>
<th>Design</th>
<th>Intervention</th>
<th>Results</th>
<th>Matching</th>
<th>Limitations</th>
<th>Theory</th>
</tr>
</thead>
<tbody>
<tr>
<td>DiClemente (2004)</td>
<td>Birmingham, AL</td>
<td>N=522</td>
<td>RCT (random numbers sequence)</td>
<td>Information Skills Training Peer education Culturally tailored</td>
<td>Intervention group participants were more likely to use condoms consistently in previous 30 days, and using condoms consistently at 6-month follow-up (baseline to 6 months), 12-month follow-up (from 6 month follow-up to 12-month follow-up), and at 12 month follow-up (from baseline to 12 months). HIV intervention participants were also more likely to report condom use at last vaginal intercourse, less likely to report that they were pregnant, and less likely to have reported having a new sex partner in prior 30 days. Intervention participants were also more likely to have engaged in condom-protected sex acts, have fewer unprotected intercourse episodes, and to have put a condom on a partner at all follow-up periods. Intervention participants had significantly fewer Chlamydia infections, but not fewer trichomonas or gonorrhea infection at 12-month follow-up.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>100% female</td>
<td>100%</td>
<td></td>
<td></td>
<td></td>
<td>Gender Ethnicity</td>
<td></td>
<td>Social cognitive theory Theory of gender and power</td>
</tr>
<tr>
<td>DeLamater (2000) “fair” quality study</td>
<td>Milwaukee, WI</td>
<td>N=526 100% male 100% African-American Recruited from STD clinic</td>
<td>RCT</td>
<td>Information Mass media Culturally tailored Peer education (via video) Skills training Risk reduction materials</td>
<td>Intervention was delivered via video, utilizing music, personal stories, utilizing young African-American male presenters. 3 groups: 1. Video-based intervention (14 minutes long) 2. Health-educator intervention (individual session, 14 minutes long) 3. Standard clinic care</td>
<td>At 6-month follow-up, participants in all conditions were more likely to report consistent condom use with casual and steady partners.’ Condom use (reported for past month) among all conditions increased at follow-up from baseline. All intervention conditions had positive post-test impact on condom use knowledge, self-efficacy and intentions, but gains decreased over time.</td>
<td>Gender Ethnicity</td>
<td>Self-regulation model of illness behavior Self-efficacy</td>
</tr>
</tbody>
</table>
100% female  
60% African-American  
40% Latino  
Recruited from adolescent medicine clinic | RCT (random number sequences) | Information Skills Training  
Culturally tailored  
3 groups:  
1. Skills-based HIV/STD intervention (included condom use and condom negotiation skills)  
2. Information-based intervention  
3. Health-promotion control intervention  
Both intervention groups received similar information with the exception of skills training for condom use. All groups were conducted for 250 minutes in a one-time session. | At 12-month follow-up, participants in skills-based intervention reported significantly fewer episode of unprotected intercourse than either control or information-based group.  
At 12-month follow-up, skills-based participants also reported significantly fewer partners than control group participants.  
At 12-month follow-up, skills-based participants were significantly less likely to have had an STD than control intervention.  
African-American and Latina participants did not differ on rates of sexual behaviors or STD rates, but did have some differences in cognitive variables (e.g., attitudes, beliefs).  
Few significant group differences at 3- and 6-month follow-up. | Gender | Social Cognitive Theory  
Theory of Reasoned Action  
Theory of Planned Behavior |
| Kirby (2004) “fair” quality study | California and Texas | N=3869 27% Latino 18% Asian 17% African-American School-based 10 schools in CA, 10 schools in TX | RCT | Information | Mass media Peer education Referrals Skills training Parent education School mobilization |
|----------------------------------|---------------------|-------------------------------------------------------------------------------------------------|-----|---------------------------------------------|---------------------------------------------|---------------------------------------------|---------------------------------------------|---------------------------------------------|---------------------------------------------|
|                                  |                     |                                                                                                |     | 2 groups:                                  |                                            |                                            |                                            |                                            |                                            |                                            |
|                                  |                     |                                                                                                |     | 1. Comparison schools utilized a standard 5-session knowledge-based curriculum. |                                            |                                            |                                            |                                            |                                            |                                            |
|                                  |                     |                                                                                                |     | 2. Intervention group utilized 10 sessions in 9th grade and 10 sessions in 10th grade. |                                            |                                            |                                            |                                            |                                            |                                            |
|                                  |                     |                                                                                                |     | Intervention schools also worked on promoting a school environment that reinforced intervention concepts throughout the year. Also utilized parent education and linkages with community-based organizations |                                            |                                            |                                            |                                            |                                            |                                            |
|                                  |                     |                                                                                                |     | Intervention did not significantly delay the initiation of sexual intercourse. Intervention did reduce frequency of unprotected sex, increased condom use during last sex. Had stronger effect on males for outcomes involving condom use. Intervention had differing effects with regard to ethnicity, such at although overall did not delay initiation of sex, it did for Latino students. Also, increased condom use at last sex more for Latinos and Whites than for African Americans. Some different results for protection strategies by race: African-American students reduced their risk by reducing the number of unprotected partners; Latinos decreased risk by delaying initiation of sex and increasing condom and contraceptive use; and Whites decreased risk by increasing condom use. Intervention also had greater effect in terms of frequency of unprotected sex on youth who had NOT already had sex by baseline assessment. For youth who were sexually experienced at baseline, intervention had greater impact on condom use at last sex. |                                            |                                            |                                            |                                            |                                            |                                            |
|                                  |                     |                                                                                                |     | Randomly assigned schools, rather than individuals |                                            | Social Cognitive Theory Social Influence Theory Models of School Change |                                            |                                            |                                            |                                            |                                            |                                            |
### Table 5
**Ongoing Studies of HIV Prevention Interventions with communities of color**

<table>
<thead>
<tr>
<th>Target Population</th>
<th>Study Design</th>
<th>Study Description</th>
<th>Funding Source and Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>African-American women crack cocaine addicts</td>
<td>Long-term follow-up of randomized controlled trial</td>
<td>Will evaluate the long-term effectiveness of a culturally specific, woman-focused intervention relative to the NIDA standard intervention in terms of crack use and sexual risk behaviors and self-sufficiency; will examine the mediating effects of employment and housing on effectiveness of intervention at changing HIV risk behaviors; will estimate the cost and cost-effectiveness of a culturally specific, woman-focused intervention relative to NIDA standard in terms of crack use and sexual risk behaviors.</td>
<td>National Institute on Drug Abuse  PI: Wendee Wechsberg  Location: Research Triangle Park, North Carolina</td>
</tr>
<tr>
<td>African-American adolescents</td>
<td>Randomized controlled trial</td>
<td>Will test a family-based intervention designed to prevent or reduce AIDS/STD risk behaviors among urban African-American adolescents (ages 11-13) from lower income families with less well educated parents.</td>
<td>National Institute of Mental Health  PI: Larry Icard  Location: Philadelphia, Pennsylvania</td>
</tr>
<tr>
<td>African-American female adolescents and mothers</td>
<td>Randomized controlled trial</td>
<td>Will compare a treatment intervention, Mother/Daughter HIV Risk Reduction Intervention (MDRR) with 2 control groups: the Health Expert HIV Risk Reduction Intervention (HERR) and the Mother/Daughter Health Promotion Intervention (MDHP) in 3 similar but geographically distinct settings.</td>
<td>National Institute of Mental Health  PI: Barbara Dancy  Location: Chicago, IL</td>
</tr>
<tr>
<td>African-American adolescents</td>
<td>Randomized controlled trial</td>
<td>Will evaluate the role and value of biological markers in behavioral research looking at two interventions and one control group. The study aims to assess the relative efficacy of safer sex and ‘pure’ abstinence-based interventions.</td>
<td>National Institute of Child Health and Human Development  PI: Kaye Sly  Location: Jackson, MS</td>
</tr>
<tr>
<td>African-American crack cocaine smokers</td>
<td>Randomized controlled trial</td>
<td>Will test the effects of peer interaction and intervention content on condom use behaviors and condom use self-efficacy beliefs among participants.</td>
<td>National Institute of Drug Abuse  PI: Mark Williams  Location: Houston, TX</td>
</tr>
<tr>
<td>African-American mothers who use crack and their children (ages 10-14)</td>
<td>Randomized controlled trial</td>
<td>Will consist of formative and evaluative phases. In formative phase will adapt and refine recruitment and retention strategies with community input. The experimental phase will examine the outcomes of the family-skills intervention delivered in a multi-component format (maternal, youth, mother-child sessions) to prevent drug abuse and HIV among children.</td>
<td>National Institute of Drug Abuse  PI: Wendy Lam  Location: Research Triangle Park, NC</td>
</tr>
<tr>
<td>African-American males diagnosed with STD</td>
<td>Randomized controlled trial</td>
<td>Will assess the feasibility and efficacy of a brief, interactive, one-on-one, intervention designed to motivate men to use condoms and provide them with the skills to use them correctly.</td>
<td>National Institute of Mental Health  PI: Richard Crosby  Location: Atlanta, GA</td>
</tr>
<tr>
<td>African-American HIV-serodiscordant couples</td>
<td>Randomized controlled trial</td>
<td>Will test the effects of the HIV/STI sexual risk intervention on STI incidence, sexual behavior, and mediators of sexual behavior; and whether the intervention’s effects are different depending on key moderator variables.</td>
<td>National Institute of Mental Health  PI: Nabila El-Bassel  Location: NY, NY</td>
</tr>
<tr>
<td>African-American parents and children at church</td>
<td>Randomized controlled trial</td>
<td>Will test the effects of the church-based interventions on adolescents’ sexual behavior; examine theoretical mediators of intervention effects; and test potential moderators of intervention effects.</td>
<td>National Institute of Mental Health  PI: Loretta Jemmott  Location: Philadelphia, PA</td>
</tr>
<tr>
<td>Target Population</td>
<td>Research Design</td>
<td>Intervention Description</td>
<td>Funding and Location</td>
</tr>
<tr>
<td>-----------------------------------------------</td>
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</tr>
<tr>
<td>African-American females who use drugs</td>
<td>Randomized controlled trial</td>
<td>Will test the effects of the 2-session skill-building HIV risk-reduction intervention on unprotected sexual intercourse, condom coupon redemption, STD incidence, and mediators of sexual behavior; and whether intervention effects are systematically different depending on key moderator variables.</td>
<td>National Institute of Mental Health PI: Loretta Jemmott Location: Philadelphia, PA</td>
</tr>
<tr>
<td>African-American adolescents</td>
<td>Randomized controlled trial</td>
<td>Will test the effects of a multi-level HIV/STD prevention strategy for high-risk youth. Intervention consists of Focus on Kids HIV-prevention intervention and a widespread media campaign (to be delivered in 2 out of the 4 cities).</td>
<td>NIH PI: Larry Brown Locations: Providence, RI; Syracuse, NY; Columbia, SC; Macon, GA</td>
</tr>
<tr>
<td>African-American men and women</td>
<td>Randomized controlled trial</td>
<td>Will test the effectiveness of a videotape-based HIV prevention intervention on participants’ HIV-related knowledge, sensitization to HIV risk, intentions to change risk behaviors, increased effectiveness in communicating ways to reduce risk with sexual partners, and increased use of condoms.</td>
<td>National Institute of Mental Health PI: Ekere Essien Location: Houston, TX</td>
</tr>
<tr>
<td>African-American males who use drugs</td>
<td>Randomized cluster analysis</td>
<td>Will investigate whether increased adaptive coping skills, perceptions of personal control, ethnic identity, satisfaction with life direction, and adaptive peer group support at post intervention predict decreases in drug- and sexual-risk related behaviors at 6 month follow-up.</td>
<td>National Institute of Drug Abuse PI: Larry Gant Location: Detroit, MI</td>
</tr>
<tr>
<td>African-American adolescent females treated for STDs</td>
<td>Randomized controlled trial</td>
<td>Will determine the efficacy of the HIV intervention plus the standard-of-care counseling, relative to standard-of-care STD counseling only in reducing HIV sexual risk behaviors and incident STDs over a 12 month follow-up.</td>
<td>National Institute of Mental Health PI: Ralph Diclemente Location: Atlanta, GA</td>
</tr>
<tr>
<td>African-American females with STDs</td>
<td>Randomized controlled trial</td>
<td>To determine the effects of the intervention on the mediating outcomes—STD related social, psychological, and skill/behavioral factors; health status outcome-laboratory confirmed newly contracted STDs.</td>
<td>National Institute of Nursing Research PI: Lorna Finnegan Location: Chicago, IL</td>
</tr>
<tr>
<td>African-American males</td>
<td>Qualitative and longitudinal pilot study</td>
<td>To develop and pilot a brief male-centered condom promoting intervention program in order to encourage condom use.</td>
<td>National Institute for Child Health and Human Development PI: Stephen Kennedy Location: Calverton, MD</td>
</tr>
<tr>
<td>African-American MSM</td>
<td>Survey</td>
<td>Target population is young African-American men for a survey regarding HIV risk behavior and attitudes towards vaccine trials. Identify information regarding meaning of behavior for specific subcultures.</td>
<td>NIH PI: Susan Cochrane Location: Los Angeles, CA</td>
</tr>
<tr>
<td>African-American MSM</td>
<td>Community Identification Process (CID) (formative research strategy)</td>
<td>Identify social networks for African-American MSM, assess influence of culture and community on HIV risk reduction behaviors, compare and contrast rural and urban southern African-American men for issues specific to each group. Information will be used for development of an intervention.</td>
<td>NIH PI: Leonard Goodwin Location: South Carolina</td>
</tr>
<tr>
<td>Latino adolescents</td>
<td>Randomized controlled trial</td>
<td>Will test the efficacy of an HIV prevention intervention with Latino adolescents delivered via a parenting intervention. The intervention will aim to positively influence risky sexual behavior and drug use. The parenting intervention will target parent-adolescent communication about HIV and to increase both parents’ and adolescents’ knowledge of HIV.</td>
<td>National Institute of Mental Health PI: Jose Szapocznik Location: Miami, FL</td>
</tr>
<tr>
<td>Latino adolescents</td>
<td>Randomized controlled trial</td>
<td>Intervention will target behavior problems, risk behavior and drug abuse. The curricula “Familias UNational Institute of Drug Abuses” will utilize family functioning, parental monitoring and target other cognitive mediators of behavior. The effects of the intervention will be monitored over time.</td>
<td>National Institute on Drug Abuse PI: Hilda Pantin Location: Miami, FL</td>
</tr>
<tr>
<td>Latino adolescents</td>
<td>Randomized controlled trial</td>
<td>Will test the effects of an intervention aimed towards changing the HIV risk behavior of adolescents. The intervention will utilize cognitive-behavioral theory and results of formative re-</td>
<td>National Institute of Mental Health PI: Valerie Reyna Location: Arlington, TX</td>
</tr>
<tr>
<td>Project Title</td>
<td>Population</td>
<td>Design/Methodology</td>
<td>PI/Institution</td>
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<tr>
<td><strong>Systematic Review of Interventions to Prevent HIV Infection in Communities of Color</strong></td>
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<tr>
<td><strong>Mexican adolescents</strong></td>
<td>Randomized controlled trial</td>
<td>Will study the effects of a theory-based intervention on reducing self-reported HIV risk-associated sexual behavior; will determine whether effects moderated by key individual, microsystem and macrosystem; will determine whether parental component increases amount and comfort with parental communication.</td>
<td>National Institute of Nursing Research PI: Antonia Villarruel Location: Mexico</td>
</tr>
<tr>
<td><strong>Latino youth</strong></td>
<td>Randomized controlled trial</td>
<td>Will conduct trial to test intervention with approximately 286 young/adolescent couples with children. The curricula will be adapted from “Be Proud! Be Responsible!” to be applicable to the targeted population. Issues such as gender and power will be addressed via the intervention, which will target sexual risk behaviors and intermediate outcomes as well (e.g., social cognitive factors).</td>
<td>National Institute of Nursing Research PI: Deborah Koniak-Griffin Location: Los Angeles, CA</td>
</tr>
<tr>
<td><strong>Latino MSM</strong></td>
<td>Randomized controlled trial and quantitative methods</td>
<td>This study will develop and test a culturally-appropriate message to encourage Latino MSM to get tested for HIV. The message will be developed and tested for efficacy in terms of who tests and returns for results. Different types of messages (e.g., audio vs. written) will be tested against each other, and issues of acculturation will also be examined. Earlier phases will examine factors associated with HIV testing and will also develop the persuasive message.</td>
<td>National Institute of Mental Health PI: M. Isabel Fernandez Location: Fort Lauderdale, FL</td>
</tr>
<tr>
<td><strong>Latino MSM</strong></td>
<td>Randomized Controlled Trial</td>
<td>This study will support the development of a protocol and instruments for an intervention for high-risk internet using Latino MSM.</td>
<td>NIH PI: B.R. Rosser Location: Minneapolis, MN</td>
</tr>
<tr>
<td><strong>Latino MSM</strong></td>
<td>Quantitative survey and qualitative intervention development</td>
<td>This study will examine cultural factors (e.g., machismo, homophobia, poverty) as barriers to safe sex among Latino homosexual/bisexual men. Will utilize qualitative and quantitative methods in 3 subgroups (Puerto Ricans in New York, Mexicans in Los Angeles, Cubans in Miami). Intervention will be culturally tailored and be tested against the “standard of care” for each city.</td>
<td>NIH PI: Rafael Diaz Location: New York, NY, Los Angeles, CA, Miami, FL</td>
</tr>
<tr>
<td><strong>Latino MSM</strong></td>
<td>Intervention</td>
<td>This project will encompass the development and pilot-testing of an intervention aimed towards improving the disclosure process for HIV+ Latino gay men. Cultural, psychological and HIV-related factors are hypothesized to impede and/or aid in the disclosure of being sero-positive. These would be investigated in both a cross-sectional survey and pilot-tested in an intervention.</td>
<td>NIH PI: Maria Cecilia Zea Location: Washington, DC</td>
</tr>
<tr>
<td><strong>Latino MSM (Dominicans, Colombians, and Brazilians in the U.S.)</strong></td>
<td>Ethnographic observation, Survey development, Quantitative cross-sectional survey</td>
<td>A three-phase theoretically-based study which will aim to identify both socio-cultural and psychosocial predictors of risk for HIV within three groups of Latino men in the U.S. The first phase will be a qualitative exploration of the context of risk, followed by measurement development and a quantitative cross-sectional survey.</td>
<td>National Institute of Child Health and Human Development PI: Maria Cecilia Zea Location: New York City</td>
</tr>
<tr>
<td><strong>Latino MSM</strong></td>
<td>Qualitative, Quantitative and Intervention Development</td>
<td>This study aims to develop an intervention focused on Latino MSM who have risky sex and may also use drugs. Qualitative and quantitative methods will be used to investigate the context wherein risk occurs, and will also compare the effectiveness and cost of different methodologies of recruitment (internet vs. face-to-face).</td>
<td>National Institute on Drug Abuse PI: M. Isabel Fernandez Location: South Florida</td>
</tr>
<tr>
<td><strong>Latino MSM</strong></td>
<td>Quantitative</td>
<td>This study will develop and test a culturally-appropriate message to encourage Latino MSM to get tested for HIV. The message will be developed and tested for efficacy in terms of who tests and returns for results. Different types of message will be tested.</td>
<td>National Institute of Mental Health PI: M. Isabel Fernandez Location: South Florida</td>
</tr>
</tbody>
</table>
### Systematic Review of Interventions to Prevent HIV Infection in Communities of Color

<table>
<thead>
<tr>
<th>Study Type</th>
<th>Research Questions</th>
<th>Location and PI</th>
<th>Funded by</th>
</tr>
</thead>
</table>
| Latino MSM                  | The project will investigate the nature of changes in the experience of Mexican gay and bisexual male immigrants that may place them at increased risk for HIV. Prior research has found that recent immigrants have relatively low risk for HIV, but that this risk increases with time spent in the U.S. Qualitative interviews and participant observation will be utilized with the target population in order to identify factors that can be incorporated into both interventions and programs that will lessen the risk as well as enhancing theoretical understanding about this population. | National Institute of Child Health and Human Development  
Pl: Hector Carrillo  
Location: San Diego, CA | National Institute of Child Health and Human Development |
| Latino MSM                  | This study focuses on drug use and HIV risk behavior in Latino gay men. Qualitative interviews will be conducted, a survey instrument will be developed, and a survey will be conducted with drug-using Latino gay men. The study aims to describe cultural and social factors and meaning that are present in the use of different drugs and cultural associations between drug use and sexual behavior. | NIH  
Pl: Rafael Diaz  
Location: San Francisco, CA | National Institute of Child Health and Human Development |
| Latino MSM                  | The study is investigating the protective effects for Latino MSM in being involved with HIV/AIDS-related community organizations. It will investigate facilitators and barriers for Latino MSM to participate in community involvement. It will look at how community involvement influences sexual risk behavior, as well as how this relationship moderates the influence of poverty, racisms and homophobia. | National Institute of Mental Health  
Pl: Jesus Ramirez-Valles  
Location: Chicago, IL & San Francisco, CA | National Institute of Mental Health |
| Latino                      | This project aims to develop and produce a documentary film about Latino gay/bisexual/transgender individuals who have been involved in community-based activities and/or volunteers in the realm of HIV prevention. The aim of the film will be to reduce stigma towards homosexuality within the Latino community. | National Institute of Drug Abuse  
Pl: H.A. Finlinson  
Location: Puerto Rico | National Institute of Drug Abuse |
| Latino MSM                  | This project will utilize qualitative methods to investigate retrospective and current influences on drug use and sexual behavior in young (ages 18-24) Puerto Rican MSM. They will investigate such factors as early life experiences (e.g., physical or sexual abuse) and the influence of peers on the participants’ on sex and drug behavior, as well as investigate the process of sexual identity formation in this population. | National Institute on Drug Abuse  
Pl: H.A. Finlinson  
Location: San Francisco, CA | National Institute of Drug Abuse |
| Asian-American women        | This study will design and implement an intervention aimed towards reducing the drug use and HIV risk behavior of Asian women masseuses in San Francisco. Two modalities will be tested: one which targets the environmental context (massage parlor owners) and one which targets individual context (peer/professional counseling program). The intervention will incorporate considerations of gender, culture and occupation. | National Institute of Drug Abuse  
Pl: Tooru Nemoto  
Location: San Francisco, CA | National Institute of Drug Abuse |
| Asian-American and Pacific Islander (Chinese, Filipino, Vietnamese) MSM | This study will examine socio-cultural influences (e.g., stigma) on sexual identity and/or orientation in API men, and in turn examine the influence of shame and/or stigma on HIV risk behavior and drug use. Will take into consideration issues such as migration/immigration history and other theoretical issues. | National Institute on Drug Abuse  
Pl: Frank Wong  
Location: Washington, DC | National Institute on Drug Abuse |
| Asian-American and Pacific Islander MSM | This study will attempt to establish incidence and prevalence rates among AAPI MSM and to identify | National Institute of Child Health and Human Development  
PI: | National Institute of Child Health and Human Development |

Notes:
- Asian-American women
- Latino MSM
- Qualitative and Quantitative
<table>
<thead>
<tr>
<th>Study Area</th>
<th>Study Type</th>
<th>Intervention Details</th>
<th>PI/Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asian-American &amp; Pacific Islander MSM</td>
<td>Qualitative pilot intervention</td>
<td>This study aims to test an intervention conducted with two different API MSM populations: youth aged 18-24, and HIV+ people. The intervention was developed following several focus groups and a pilot study. It is the result of a collaboration between a research institution (CAPS) and a community-based organization (Asian &amp; Pacific Islander Wellness Center). These populations have not been targeted by any prior HIV prevention interventions.</td>
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<tr>
<td>PI: Tooru Nemoto</td>
<td>Location: San Francisco, CA</td>
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<tr>
<td>Asian and Pacific Islander MSM</td>
<td>Qualitative</td>
<td>This exploratory study aims to investigate the contexts associated with drug use and sexual risk among young (ages 18-29) API MSM. It will investigate the role of such factors as social networks and social contexts via individual interviews and focus group discussions.</td>
<td>National Institute on Drug Abuse</td>
</tr>
<tr>
<td>PI: Kyung-Hee Choi</td>
<td>Location: San Francisco, CA</td>
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<tr>
<td>American Indian ages 12-14 and their families</td>
<td>Randomized controlled trial</td>
<td>Will test the efficacy of a family-based intervention approach that measures HIV risk behaviors, substance use, family functioning, and other problem behaviors. By targeting the intra- and interpersonal functioning of Native families and adolescent literacy deficits in a single intervention, the study attempts to address the widest array of risk and protective factors known to influence Native adolescent drug use and HIV-risk behaviors.</td>
<td>National Institute of Drug Abuse</td>
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<tr>
<td>PI: Betsy Davis</td>
<td>Location: Eugene, Oregon</td>
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<tr>
<td>American Indian adolescents</td>
<td>Stratified random sample and longitudinal data sets</td>
<td>Will use psychiatric epidemiology and developmental psychopathology frameworks to guide analyses and Social Cognitive Theory and Stress-Vulnerability Theory to select constructs to be utilized in these frameworks. This development theory of prevention will be used to guide the selection, design, and adaptation of community-based, culturally appropriate HIV prevention interventions for this age group.</td>
<td>National Institute of Mental Health</td>
</tr>
<tr>
<td>PI: Christina M. Mitchell</td>
<td>Location: Aurora, Colorado</td>
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<tr>
<td>American Indian, alcohol detox enrollees</td>
<td>Qualitative and pilot intervention</td>
<td>Will explore 3 interventions with 25 individuals per condition with a 3 month follow-up: a) risk assessment intervention; b) motivational interviewing intervention; c) motivational interviewing and biological feedback intervention.</td>
<td>National Institute on Alcohol, Abuse and Alcoholism</td>
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<tr>
<td>PI: Christiane Brems</td>
<td>Location: Anchorage, Alaska</td>
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<tr>
<td>Drug-using women sex workers</td>
<td>Randomized controlled trial</td>
<td>Will implement and evaluate the effectiveness of two interventions: 1) a sex worker focused intervention developed in conjunction with street-based sex workers and delivered by former sex workers and 2) a conventional intervention delivered by former sex workers.</td>
<td>National Institute on Drug Abuse</td>
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<tr>
<td>PI: James Inciardi</td>
<td>Location: Newark, DE</td>
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<tr>
<td>African-American and Latino adolescens</td>
<td>Randomized controlled trial</td>
<td>Will test the generalizability of the Be Proud! Be Responsible! Abstinence-based and safer-sex curricula across several dimensions including ethnicity of participants, ethnicity of facilitator, ethnic specificity of intervention, and type of outcome measure.</td>
<td>National Institute on Child Health and Human Development</td>
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<tr>
<td>PI: John Jemmott</td>
<td>Location: Philadelphia, PA</td>
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<tr>
<td>African-American and Latino adolescens and their parents</td>
<td>Randomized controlled trial</td>
<td>Will examine factors associated with urban parents willingness to participate in an intervention aimed at reducing sexual risk behaviors and STD and HIV infection in urban youth of color. The curricula will be adapted from Be Proud! Be Responsible! The project will test both a parent driven intervention (e.g., how well parents who receive mentorship from community parents will deliver interven-</td>
<td>National Institute of Mental Health</td>
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<tr>
<td>PI: Mary McKay</td>
<td>Location: New York, NY</td>
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<tr>
<td><strong>Systematic Review of Interventions to Prevent HIV Infection in Communities of Color</strong></td>
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| **African-American and Latina adolescents** | Randomized controlled trial | Will test an intervention aimed towards high-risk young adolescent females, especially focusing on alcohol use and the link between alcohol use and risk taking. The mechanism of delivery will be parent education. Three parental mechanisms will be examined; parental monitoring, household rule setting and communication. An audio cd will be developed and delivered to parents to deliver information to them. Outcomes related to both alcohol use and risk taking will be examined. | National Institute on Alcohol Abuse and Alcoholism  
PI: Lydia O'Donnell  
Location: New York City |
| **African-American and Latino MSM** | Interviews, pilot, and experimental longitudinal study | This project will attempt to replicate prior findings with white men that found an interactive video intervention produced significant reductions in sexual behavior. Will develop a template for the development of effective HIV prevention interactive video (IAV) for targeted audiences; assess the role of IAV in increasing condom use; assess whether IAV is effective in reducing HIV risk; assess psychological factors that mediate and moderate impact of IAV on changes in condom use over time. A culturally tailored video will be developed and tested. | National Institute of Allergy and Infectious Disease  
PI: Lynn Miller  
Location: Los Angeles, CA |
| **African-American, API, and Latino MSM** | Qualitative and Quantitative | This study will attempt to identify sexual partnership patterns and explore the relationship between social discrimination, social networks, sexual partnerships, and HIV risk among MSM of color. It will utilize qualitative methods, develop new quantitative survey instruments, and finally conduct a cross-sectional survey with 1200 men. | NIH  
PI: Kyung-Hee Choi  
Location: Los Angeles, CA |
| **Latino, African-American, & Asian-Pacific Islander MSM** | Ethnographic, Interviews, | This exploratory study will focus on MSM using the internet in New York City. It will identify the contexts in which unprotected sex occurs via interviews and ethnography. The role of ethnicity will be explored, and psychosocial variables will be identified as predictors of condomless sex. | NIH  
PI: Alex Carballo-Díeguez  
Location: New York City |
| **Multicultural youth** | Randomized controlled trial | Will replicate, in a different and more ethnically diverse community the “Focus on Kids” intervention; determine whether the intervention effects are due to content, to grouping participants within friendship networks or both; evaluate mediators of the effects of the intervention; examine maintenance of intervention in 12-month follow-up. | National Institute for Child Health and Human Development  
PI: Diane Morrison  
Location: Seattle, WA |
| **Adolescent female offenders** | Longitudinal analysis | Will study effects of a drug abuse related HIV risk reduction intervention on condom use, risk behaviors post-intervention, and incidence of chlamydia and gonorrhea infection. | National Institute of Drug Abuse  
PI: Angela Robertson  
Location: Mississippi State, MS |
Figure 1: Selection of studies

Number of citations identified: n = 121

Identified as relevant: n = 43

Excluded as not relevant: n = 98

Excluded: n=28

Identified as including ethnic minority n = 15

Comprised of 100% one race/ethnicity n=9

Separate analyses conducted for different race/ethnicities n=4

Greater than 80% one race/ethnicity n=2

Figure 2: Included Studies by Risk Population and Reporting of Ethnic Minorities

**MSM (n=2)**
- 100% Latino =1
- Separate Analyses = 1

**Drug Users (n = 4)**
- 100% AA = 2
- >80% AA = 1
- 100% Latino = 1

**Heterosexuals (n=4)**
- 100% AA = 2
- >80% AA = 1
- > 80% Latino = 1

**Adolescents (n= 4)**
- 100% AA = 2
- Separate Analyses = 2
Appendix I

Interventions included in review


Secondary analyses on primary papers from above


Appendix II

Randomized controlled trials (RCTs) with less than 80% participants of color


Appendix III

Interventions (RCTs) with HIV+ participants


Interventions with HIV+ people, non-RCTs

Appendix IV

Interventions with significant % participants of color, NON RCT


Appendix V

Background articles


Rietmeijer, C.A. (2003). The max for the minimum: Brief behavioral interventions can have important HIV prevention benefits. AIDS, 17(10), 1561-1562.


