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Dissemination Project

RESEARCH SUMMARY

Systematic Review of Interventions to Prevent HIV Infection in MSM of Color

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Systematic Review of Interventions to Prevent HIV Infection in MSM of Color

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The Dissemination Project and the Research Summary Series

The *California Collaborations in HIV Prevention Research: Dissemination Project* is designed to disseminate information about prevention intervention projects and to serve as a resource to be used by California local health departments and community-based organizations. To support these efforts, the State Office of AIDS (OA) and the Universitywide AIDS Research Program (UARP) joined forces in 1998 to provide funding for HIV/AIDS community research collaborations and to foster partnerships among researchers, community-based AIDS service organizations, and local health departments.

The Research Summary series is part of a larger set of resources developed as a response to the statewide public health need to support evidence-based planning, design, and evaluation; to build community research capacity; and to disseminate information on HIV/AIDS prevention interventions. This series is composed of three systematic reviews of HIV/AIDS prevention interventions for people of color throughout the United States, of which this publication is the second. The populations include African American heterosexuals, men who have sex with men (MSM) of color, and women of color. These comprehensive appraisals of existing prevention interventions are valuable contributions to the information available to California providers of HIV/AIDS prevention services. Materials are disseminated in print format, and in portable document format (PDF) on the UARP website: **http://uarp.ucop.edu.**

MSM represent 48% of cumulative AIDS cases in the U.S. and 46% of HIV cases, but only 3% of men identify as gay or report having sex with men.[1,2]

Introduction

This Research Summary focuses on HIV prevention interventions specifically designed and conducted for MSM of color and provides recommendations for health departments and community-based organizations (CBOs) that may be interested in designing interventions aimed toward stemming HIV infection in these communities, as well as researchers working with these groups. This publication is based on the research literature and therefore does not claim to represent formative research or programmatic work that may be being conducted by CBOs. The authors acknowledge that many MSM 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.

The structure of the report is as follows: First we summarize epidemiological information on HIV/AIDS in the United States among African American, Latino/Hispanic, Asian American and Pacific Islander, and American Indian and Alaska Native MSM. Second, we summarize and critically analyze published HIV prevention interventions targeting MSM of color. Third and finally, we conclude with general and ethnicity-specific recommendations for developing and implementing programs for MSM of color.

Background

Although we are in the third decade of the HIV pandemic, there is still no cure or vaccine for the disease. At this time, behavioral risk prevention interventions remain among the principal means of 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 a significant overrepresentation of people of color among new HIV infections. For example, while African Americans make up approximately 12% of the U.S. population, they represented 50% of the newly diagnosed HIV cases in the United States in 2003 (among the 32 states that have confidential name-based HIV reporting).[1] 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 accounted for 20% of the newly diagnosed AIDS cases between 1999 and 2003.[1]

California Infection Statistics

- Through October of 2004, males who reported sexual contact with men represented 68% of cumulative AIDS cases and 72% of all males with HIV.
- Of these, men of color represent 35% of AIDS cases and 41% of HIV cases.
- For AIDS cases among men of color diagnosed in 2002–2003, MSM exposure was reported by roughly 60%.

In addition, from the beginning of the epidemic, MSM have represented a disproportionate number of those infected with HIV in the United States. Statistics from the Centers for Disease Control and Prevention (CDC) indicate that MSM represent 48% of cumulative AIDS cases and 46% of the cumulative cases of HIV infection for males through 2003.[1] The figure for cumulative HIV incidence is somewhat of an underestimate, for two reasons. First, these statistics are representative only of areas of the United States with confidential HIV infection reporting, which have just recently come to include certain high-prevalence states such as New York and California. Second, another 31% of HIV infection cases fall into the "other/risk not reported or identified category," some of which may include MSM who do not identify as such. Nonetheless, 43% of HIV infection cases remains a disparate figure from the approximately 3% of men who identify as gay or report having sex with other men.[2]

The high level of infection in communities of color can be seen when examining HIV infection rates for MSM. Cumulatively through 2003, CDC statistics describe male-to-male sexual contact as accounting for 37% of AIDS cases among African American men, 43% of cases among Latino men, 69% of cases among Asian American and Pacific Islander men, and 56% of the cases among American Indian and Alaska Native men.[1] Nationally, among men of color with HIV, MSM are overrepresented. In a seven-city prevalence study conducted by the CDC among 15- to 22-year-old MSM of color, the prevalence rates were 14% for African Americans and 7% for Latinos.[3]

In California, a more extreme version of the national picture of the epidemic can be found. Through October of 2004, males who reported sexual contact with men represented 68% of cumulative AIDS cases and 72% of all males with HIV. Of these, men of color represent 35% of AIDS cases and 41% of HIV cases, of whom 24% are Latinos, 12% African American, 2% Asian American or Pacific Islander, and 0.5% American Indian or Alaska Native.[4] Among male AIDS cases diagnosed in 2002–2003 in California, MSM exposure was reported by 58% of African Americans, 62% of Latinos, 66% of Asian Americans and Pacific Islanders, and 58% of American Indians and Alaska Natives.[5]

For the United States, although some decrease in HIV prevalence has been reported overall,[6] the majority of AIDS cases among MSM in the United States are among men of color (data through 2003).[7] Given the risk for HIV infection for MSM of color, and that research with White gay men may not be applicable to MSM of color,[8] it is imperative that prevention interventions specifically tailored for these communities be designed and implemented. The balance of this document describes such HIV prevention interventions and related research.

The majority of AIDS cases among MSM in the United States are among men of color.

Objectives and Method

The objectives of this review were threefold:

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

Selection Strategies

We included studies that evaluated the effects of behavioral, social, or policy interventions on at least one outcome measure related to HIV transmission. We included randomized controlled trials (RCTs) and studies of other designs that utilized a comparison group (including pretest, post-test design). We also identified noncontrolled interventions that were designed to prevent HIV transmission among MSM of color. In sum, we included all outcome evaluation studies, but categorized them according to study design: randomized controlled trial, controlled clinical trial, noncontrolled interventions, and so forth.

Intervention Types

The interventions studied fell into the following three broad types:

- **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 norms or peer norms. Social interventions include strategies such as community mobilization, diffusion, building networks, and structural and resource support.

Inclusion Criteria

For inclusion, study samples had to meet one of the following criteria:

- 100% of sample was MSM of color—African American, Latino, Asian American/Pacific Islander, American Indian/Alaskan Native.
- If less than 100% was MSM of color, separate analyses were reported for participants of color in order to understand the impact of the intervention on different study populations.

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

Outcome Measures

Studies were included that reported any type of outcome measure related to HIV transmission: knowledge, attitudes, intentions, self-reported risk behavior, and biological outcomes such as HIV or sexually transmitted infections.

Search Strategy for Identification of Studies

We conducted systematic, comprehensive searches for relevant studies on electronic databases, through hand searching key journals and conference proceedings, by scanning reference lists of reports of relevant outcome evaluation studies and reviews, and by directly contacting researchers and research organizations. The main aim was to identify published and unpublished reports of outcome evaluation studies of HIV/AIDS behavioral prevention interventions targeting ethnic minority populations of MSM in the United States (African American, Latino, Asian Americans and Pacific Islanders, and American Indians and Alaskan Natives). Studies conducted between 1988 and April 2005 were identified from searches on AIDSLINE, the Cochrane Controlled Trials Register, MEDLINE, PsycINFO, and Sociofile. 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.

Studies were stratified according to percentage of participants who were MSM of color and study design. In Appendix A, separate tables list all studies with randomized controlled design with 100% MSM of color, studies of published noncontrolled interventions with MSM of color, and studies that included separate analyses for MSM of color. All of these studies are described in the text below. Appendix B lists ongoing studies with MSM of color funded by the National Institutes of Health.

Findings

Overall, seven studies with ethnic minority MSM participants met our inclusion criteria, Five of them included 100% MSM of color as participants in their samples. We identified two studies that included some MSM of color as participants and reported separate analyses for those participants. Of the five studies that focused exclusively on MSM of color, one study focused on African Americans, three focused on Latinos, and one focused on Asian Americans and Pacific Islanders. Seven other studies were excluded from this review for either not meeting our methodological criteria or having a sample composed of less than 50% MSM of color with no separate analyses conducted for those participants.

With regard to study design, four studies were randomized controlled trials (one with African American participants, one with Latino participants, one with Asian American and Pacific Islander participants, and one with separate analyses for MSM of color), and three were noncontrolled interventions (two with only Latino participants and one with an ethnically mixed sample).

Below, we review the seven included studies categorized by ethnic group of participants and by study design. (These studies are summarized in Appendix A.) First, we briefly review the three methodologically strongest interventions (randomized controlled trials) conducted with 100% MSM of color. We then review two noncontrolled intervention studies with MSM of color. Finally, we review the two studies that conducted separate analyses for MSM of color. Where relevant, references to individual studies are given parenthetically; full citations for the original study reports can be found in Appendix C.

*Of the seven studies that were identified, two came from AIDSLINE, three from MEDLINE, two from PsycINFO, and two through searching reference lists. Some studies were identified through more than one source.

Randomized Controlled Trials with 100% MSM of Color

African American Study

We were able to identify only one study that was specifically aimed at preventing HIV infection in African American MSM (Peterson et al. 1996). Although several other studies identified in our searches contained some percentage of MSM participants, either there were no separate analyses for the African American participants, no separate analyses for MSM in studies that included participants from more than one risk group, or both. Peterson and colleagues conducted a randomized controlled trial that investigated the effects of interventions of varying lengths on the risk behavior of the participants. The sample consisted of 318 African American MSM recruited from San Francisco and Alameda counties in California. The study was randomized through a blocked randomization process, in order to ensure sufficient recruitment for the groups, and the randomization itself was computer-generated. The intervention was theoretically derived from the AIDS Risk Reduction Model (ARRM).[9] Its components included information, skills training, and a cultural component, which addressed issues of self-identity that may arise from being African American MSM.

The three-session intervention group reported significantly less HIV risk behavior at both 12 and 18 months.

The three-session intervention group reported significantly less HIV risk behavior at both 12 and 18 months. The intervention compared a wait-list control group to two intervention groups, which differed in the duration of the intervention. One intervention group attended three 3-hour weekly group meetings, while the other group attended only one 3-hour group meeting. The authors reported that compared to the control groups, both intervention groups reported decreased unprotected anal intercourse at both 12- and 18-month follow-up. The actual percentage decrease for the three-session intervention group was 50% at the 12-month follow-up, and this was also observed at the 18-month follow-up. When compared to the single-session intervention group, the three-session intervention group reported significantly less HIV risk behavior at both 12 months (from 46% to 20% for the three-session intervention, and from 47% to 38% for the single-session intervention) and 18 months (from 45% to 20% for the three-session intervention, and from 50% to 38% for single-session intervention). Thus, the dose of the intervention had a significant relationship to the desired outcome (less HIV risk behavior).

This study has some limitations. There were significant differences between groups at entry, and the authors reported fairly high attrition (47% for the three-session intervention and 55% for the single session). Nonetheless, it was a well-designed study, and the results are positive. Given that this is the only published randomized controlled trial identified for African American MSM, it demonstrated that this is a population that can be recruited and can show significant reductions in risk behavior following a tailored intervention. (A caveat that should be noted is that the participants were paid for their participation. The authors do not discuss this as a limitation, but it is possible that payment could influence the types of participants successfully recruited and maintained for the intervention.)

It is difficult to know how well the results of this study would generalize to current African American MSM, as this intervention was conducted prior to the widespread availability of highly active antiretroviral therapy (HAART). Even though findings regarding the influence of the availability of treatment for HIV on risk behavior for HIV are inconsistent, it appears that men's beliefs regarding treatment have some influence on their engaging in risk behavior.[10]

Latino Study

The first published RCT specifically targeted to reduce HIV risk behavior in Latino gay and bisexual men was conducted by Carballo-Díeguez and colleagues in New York City (Carballo-Díeguez et al. 2005). The intervention utilized empowerment theory as well as concepts developed by Paolo Freire, specifically that of liberation of oppressed persons via education.[11,12] In addition, the authors incorporated previous findings from the literature, such as the role of social norms and a culturally specific framework.

The participants were 180 Latino gay or bisexual men who were randomly assigned to either the intervention condition or a wait-list control. Participants were recruited from various community venues such as bars, parks, and gay-oriented community organizations. The intervention was delivered once a week in eight 2-hour group sessions. Each session was guided by a manual and had a different theme (e.g., oppression, substance use, self-efficacy, and goal setting). Participants were assigned to one of 11 intervention groups. With two exceptions, all group exercises were conducted in Spanish.

Participants were not paid for the intervention session, but rather had an opportunity to win $30 in a raffle conducted each week. Follow-up assessments were completed at 2, 8, and 14 months after the group sessions were completed. Participants were paid for each of potentially three follow-up assessments that they attended, increasing from $40 to $60.

At baseline, approximately one-third of the sample was HIV positive. Over 70% of participants had been born outside of the United States; 58% of these participants had become U.S. citizens or permanent residents.

The primary aim of the study was to reduce unprotected anal intercourse (UAI) among the intervention group participants. At the first follow-up, 46% of the intervention participants had not engaged in any instances of UAI in the previous two months. However, this finding was not statistically different from the control participants, of whom 54% reported not engaging in any instances of UAI in the same time frame. Similar results were found at the 6- and 12-month follow-up assessments, in that both intervention and control group participants reported similar frequencies of no UAI (44% vs. 40%, and 51% vs. 46%). It is important to note that for eligibility criteria, all participants had to have reported that they had engaged in at least one episode of UAI in the two months prior to their entrance into the study.

Selection bias and the extensive baseline interview could have contributed to the lack of any significant group differences.

In order to explain this lack of effect for the intervention, the authors looked for differences by group in reception of services at community-based agencies, and, for the intervention participants, an effect corresponding to the number of intervention sessions attended. Neither of these factors was significant.

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 reporting relatively 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.

Intervention participants reported more anxiety about becoming infected with HIV than the control.

Asian American and Pacific Islander Study

Choi and colleagues (1996) conducted a randomized controlled trial (RCT) with 329 Asian and Pacific Islander MSM in San Francisco that investigated the effects of brief group counseling on the participants' HIV risk behavior. The participants were recruited from gay Asian and Pacific Islander organizations, bars catering to the gay Asian and Pacific Islander community, and street fairs. The sample was composed of several ethnic groups: 37% Chinese, 34% Filipino, 10% Japanese, 8% Vietnamese, and 11% other.

The intervention was conducted in one small-group session and lasted approximately 3 hours. The intervention was theoretically based on the health belief model,[13] the theory of reasoned action,[14] and general social cognitive theory.[15] It addressed both psychological and cultural identity issues, aiming to facilitate positive self-identity in the participants and improve support regarding the participants' self-image, specifically their identity as Asian and Pacific Islander gay men. The intervention provided information regarding safer sex, as well as techniques to eroticize and negotiate safer sex. The participants not randomized to the intervention made up a wait-list control group.

At three-month follow-up, the intervention group had significantly fewer partners than the control group. Although there was no significant group difference in UAI, some ethnic differences were found. Due to similar profiles of baseline risk status, the investigators combined the results of the Chinese and Filipino subjects. When this group was compared to the other participants, the Chinese and Filipino participants in the intervention group were significantly less likely to engage in UAI at follow-up The remaining participants demonstrated a nonsignificant increase in UAI at follow-up. In addition, intervention participants significantly increased their knowledge and reported more anxiety about becoming infected with HIV than the control participants. The intervention did not effect

significant changes in perceived HIV risk or sexual negotiation for safer sex with new or primary partners.

The authors posit that the intervention had a more positive effect on Chinese and Filipino participants than on members of other ethnic groups because these two groups make up the majority of the Asian and Pacific Islander population in San Francisco. This could have meant that the other participants, being fewer in number by ethnic group, might not have been able to benefit from the social benefits of the brief group intervention as quickly or easily. For instance, they may have not received sufficient social support for safer sex.

The brevity of the intervention may have contributed to the lack of findings regarding safer sex negotiation. This type of behavior may require interventions of longer duration in order to effect significant change. Interventions with multiple sessions have significantly and positively influenced safer sex negotiation in other samples.* As in the Peterson study (Peterson et al. 1996), subject payment could have influenced the types of participants recruited, although the authors do not mention this in their discussion of possible limitations.

Overall this was a well-designed and executed trial. It reported on positive findings regarding the effects of a relatively brief intervention for Asian and Pacific Islander gay men. However, the same limitation exists as for the Peterson study, in that the current climate regarding HIV risk behavior could be influenced by the availability of HAART.

Intervention Studies with MSM of Color (non-RCT)

Puerto Rico Study

Although we were able to identify only one controlled trial of Latino MSM, we identified two noncontrolled intervention studies. Toro-Alfonso and his colleagues (2002) conducted an intervention aimed toward changing HIV risk behaviors in a sample of 587 gay men and MSM in Puerto Rico. The men were recruited from both urban and rural areas. Volunteers conducted most of the recruitment at gay-oriented meeting places.

The intervention was derived from the health belief model[16] and was also informed and culturally tailored according to literature regarding issues pertaining to HIV risk and Latino gay men. For example, internalized homophobia has been found to be associated with increased risk behavior.[17] The investigators sought to develop the intervention within the cultural context of Puerto Rican MSM. Other issues, such as self-esteem, intimacy, and substance abuse, were also incorporated into the intervention. The intervention focused on reducing higher-risk behaviors, increasing low-risk behaviors, and increasing social and community support for low-risk behavior.

The intervention appears to have had positive effects on the level of sexual risk behavior reported by the participants.

The intervention was delivered over the course of 15 hours. The men first participated in small-group meetings conducted by peer-facilitators (3 hours in length). Following their participation in the group meetings, they participated in a series of four 3-hour-long workshops focusing on specific topics such as intimacy, substance abuse, sexual behavior, and information about HIV and sexually transmitted infections (STIs). The participants completed pretest and post-test evaluations.

The authors reported only on changes that the intervention produced in sexual risk behaviors. The intervention appears to have had positive effects on the level of sexual risk behavior reported by the participants. There were significant pre-to-post differences for receptive anal intercourse without a condom, insertive anal intercourse without a condom, swallowing semen, and ejaculating into partner's mouth. In addition, index scores were created to reflect either high-risk, moderate-risk, or low-risk behaviors. Following the intervention, participants reported a significant decrease in the high- and moderate-risk behaviors, as well as a significant increase in low-risk behaviors.

Although this study produced positive results, its methodological limitations make it difficult to generalize its results. The participants were selected by convenience and availability. There was no control or comparison group with which to compare the efficacy of the intervention. The follow-up measures included only a post-test measure, and therefore no information is known about the length of time that the positive changes persisted for the participants. Nonetheless, given the paucity of published studies regarding HIV risk behavior and Latino MSM, it is important to have evidence of the feasibility of an intervention that was culturally tailored and successfully implemented.

*For example, see S. C. Kalichman, D. Rompa, and B. Coley. "Experimental Component Analysis of a Behavioral HIV-AIDS Prevention Intervention for Inner-City Women," *Journal of Consulting and Clinical Psychology* 64, no. 4 (1996): 687–93.

One important distinction should be noted, however, given that this study was conducted in Puerto Rico: although similarities do exist between the cultural environment in Puerto Rico and that of other Latino communities in the United States, it may be too much to conclude that this intervention would be generalizable to Latino communities outside of Puerto Rico.

San Francisco Study

Although not a controlled intervention, Hermanos de Luna y Sol (HLS) is a unique intervention program conducted with Spanish-speaking Latino MSM in San Francisco (Díaz 1998a, b). The program attempts to incorporate broad cultural contexts for Latino gay men into its intervention components. Latinos are estimated to represent 14% of all gay and bisexual HIV-infected men in San Francisco. Prior research has identified several factors that may place men from this group at increased risk. Issues such as poverty, homophobia, and racism have all been found to be associated with social isolation and low self-esteem.[18] These factors, in addition to others (e.g., lack of access to health care, language barriers) may increase the chances that men from this community do not utilize or are not aware of available HIV prevention services.

HLS was specifically designed to address issues pertaining to the Latino gay community. It utilized empowerment theory, social support, and skills training to reduce sexual risk behavior. The intervention was conducted via a six-week workshop series (encompassing such issues as social support and connectedness and identification of barriers to behavior change), a follow-up support group for graduates of the six-week series (to provide support and communication around sustained behavior change), and one-on-one counseling sessions designed to optimize individuals' risk reduction. Other components of the program included skills training sessions, weekend-long retreats, and artistic and social activities. (A detailed description of the intervention and its development can be found in Diaz's book *Latino Gay Men and HIV*.[19])

The initial program evaluation provided information from a sample of 185 participants, and four-month follow-up data were available for 87 participants.[20] A majority (90%) of the sample was born outside of the United States; 95% identified as gay, homosexual, or bisexual; and 85% spoke predominantly Spanish. The sample was of low socioeconomic status and young (45% younger than 30, 87% younger than 40).

The intervention produced positive results in the participants. In the sample for which four-month follow-up was available, participants reported positive changes for sexual behavior and psychological well-being. Pre- and post-tests demonstrated a 15% improvement in consistent condom use for receptive anal intercourse, a 39% improvement for insertive anal intercourse, a 52% decrease (from 21% to 10%) in participants reporting "no condom use," and a 55% increase (from 22% to 34%) in participants who reported a "firm commitment to condom use for anal sex." With regard to psychological variables, the participants reported a reduction in internalized homophobia, an increase in self-esteem, and an increase in social support and/or networks.

Although the program was successful in effecting positive change in some areas, other areas were noted as still needing improvement by the investigators. For example, the participants reported a high frequency of anonymous sexual encounters and sex under the influence of alcohol or drugs. The investigators stated that these contextual situations would be addressed in future sessions (HLS is an ongoing program) and that the program would continue to address any needs identified in the population.

HLS targeted a population that has been identified to be at increased risk for HIV transmission and has demonstrated promising successes with its culturally tailored program. Some methodological limitations exist, such as the absence of a controlled evaluation, the exclusive reliance on self-reported changes in risk, and that follow-up data was available for less than half of the participants. In addition, the participant makeup is based on a convenience sample, and may not include men who engage in riskier behavior. However, HLS is a unique and much-needed program, and its program has promise for being adapted for other populations of Latino gay men.

HLS has demonstrated promising successes with its culturally tailored program.

Studies with Separate Analyses for Participants of Color

Seattle Study

Picciano and colleagues (2001) conducted an RCT that tested a brief telephone-based intervention with 103 MSM in Seattle, Washington. Men were recruited from the community, and the sample was 76% White. The remaining participants were African Americans, Latinos, Asian Americans, American Indians or Alaska Natives, and men of other or mixed ethnicities.

Participants in both groups were given a baseline assessment that lasted approximately 90 minutes. Following this initial assessment, participants who had been randomized to the "immediate counseling" group were scheduled for a 90- to 120-minute counseling session and a 90-minute follow-up session approximately six weeks later. Participants in the "delayed" condition were not scheduled for the initial 90-minute counseling session until approximately seven weeks following the baseline assessment. The intervention content was based on motivational interviewing techniques, and was meant to support any mention of safer sex practices by the participants. In addition, participants were given feedback based on their initial baseline assessment in terms of how their behavior compared to community norms. The intervention was not specifically geared toward providing risk reduction counseling.

There was a significant protective effect of the counseling intervention on unprotected anal intercourse for men of color.

Only one finding pertained to MSM of color. There was a significant protective effect of the counseling intervention on unprotected anal intercourse for men of color. (All men of color were grouped together and compared to White participants; results were not broken down by ethnicity.) No other significant differences were found between Whites and men of color for other sexual behaviors. This was a well-designed study, but given the small number of men of color in the sample (N = 21), it is not known whether these results would generalize to larger samples of men of color.

New York Study

Miller and colleagues (1998) attempted to replicate a previous intervention that entailed training key "opinion leaders" who would, in turn, influence peer norms regarding safer sex behaviors.[21] The intervention was conducted at three bars in New York City. First, staff of the three bars were trained to identify the opinion leaders among the bar's patrons. Second, those individuals who were identified were recruited to become opinion leaders. Third, the opinion leaders were trained in topics such as communication skills (6 hours of training). Finally, the opinion leaders agreed to engage in a particular number of conversations with their peers where they would encourage safer sex practices. Following the completion of the training of the peer leaders and their completion of the conversations, bar patrons were interviewed about their sexual behavior. Among the sample of 1,741 participants, 57% identified as gay, 11% identified as heterosexual, and 32% identified as bisexual. The majority of the opinion leaders (70%) were sex workers; the remaining 30% were bartenders, bar patrons, and "johns."

With regard to men of color, the intervention produced positive changes in that it decreased rates of unprotected, paid sexual intercourse among Latino men, but not among African American men or men of other racial or ethnic groups. Latino men and men of other racial or ethnic groups also reported significantly less unpaid, unprotected sexual intercourse following the intervention, but again, this result was not found for African American men. However, it is not clear how many of the participants for either result were men having sex with men. Some men reported on sex with female partners, but this was not distinguished by the authors in the results by ethnicity. In addition, the researchers acknowledge that the participants interviewed were not necessarily directly spoken to by the opinion leaders, so it is not a direct test of diffusion theory. Limitations of this study include that the bars where the intervention was conducted were not randomized and that the intervention itself was not specifically targeted for MSM. This study did demonstrate that an intervention developed in an academic research context could be adapted by a community-based organization, and that a difficult-to-reach population such as sex workers could be successfully recruited and would participate in an intervention.

The study demonstrated that an intervention developed in an academic research context could be adapted by a CBO.

Discussion

MSM of color are at increased risk for HIV infection. We reviewed three high-quality, well-designed, and well-executed studies that rigorously evaluated interventions specifically addressing HIV risk in MSM of color. In addition, we reviewed two noncontrolled interventions conducted with Latino MSM, and two studies that conducted separate analyses for MSM-of-color participants. Of the seven studies we reviewed, six (with

the exception of Carballo-Díeguez et al. 2005) reported significant levels of behavior change following an intervention aimed toward decreasing HIV risk behavior. These findings demonstrate that behavioral prevention interventions can have a positive impact on behavior change in MSM of color.

Certain components present in the controlled interventions warrant some attention. These included skills training (e.g., negotiation skills regarding safer sex), cultural sensitivity, and longer duration in terms of both individual sessions and overall time frame (weeks or months). They also were theory-based (e.g., utilized components of cognitive-behavioral theories) and had long follow-up periods (up to 18 months). (See the Recommendations section, below.)

Several positive outcomes were reported, such as reducing the number of partners and increasing condom use. While most of the intervention studies we reviewed were of high methodological quality, the low number of evaluated interventions in these highly at-risk populations is striking. And although a number of additional studies are currently in the field, addressing this gap in our knowledge of how best to prevent HIV transmission in these very high-risk groups remains an immediate research priority.

Broader societal issues appear to have an influence on MSM sexual behavior.

One important conclusion reached from this review is particularly relevant to the design of future interventions with MSM of color. Although the methodological quality of the randomized controlled trials (RCTs) with MSM of color is high, several caveats should be noted with regard to the Peterson and Choi studies. First, they were conducted prior to the widespread availability of highly active antiretroviral therapy (HAART). The introduction of HAART has had an enormous impact on people's perception of the gravity of HIV/AIDS, and there have been some reports of increases in HIV risk behavior in the gay community being linked to optimism surrounding these drugs.[22,23,24,25] It is not known whether the approaches used in these interventions will produce the same degree of positive results in subsequent studies, given people's perceptions that the threat of HIV/AIDS may have lessened since the introduction of HAART.

Second, there is a large discrepancy between the theoretical approaches taken in the Peterson and Choi studies (primarily a cognitive-behavioral approach) and the theoretical approaches used in more recent studies that have examined predictors of HIV risk behavior in MSM of color (such as Diaz 1998; Carballo-Díeguez et al. 2005). Broader societal issues such as racism, poverty, and homophobia appear to play a very significant role in the lives of MSM of color and to have an influence on their sexual behavior.[26]

Two of the trials we reviewed that were conducted with Latino men—Latinos Empowering Ourselves (Carballo-Díeguez et al. 2005), and Hermanos de Luna y Sol (Diaz 1998b)—utilized such an approach. Although the intervention tested in the former study did not produce significant results and the latter was not a controlled trial, we still recommend that future interventions utilize similar approaches to ensuring cultural relevance.

In addition, we are aware of a community-based program in Los Angeles that is implementing a culturally tailored intervention for African American MSM based on the Critical Thinking and Cultural Affirmation (CTCA) model, which does address such issues as homophobia within the African American community and aims to improve men's positive identities as African American men in addition to providing education regarding HIV prevention. The findings are fairly preliminary, but encouraging.[27] Finally, nonevaluative research among MSM of color has demonstrated the positive correlation of social factors such as socioeconomic status, social norms, and stigmatization of homosexuality[22] and level of gay identification[29,30] with HIV risk behavior in MSM of color. In sum, there does seem to be a significant amount of evidence suggesting that larger social issues need to be addressed for interventions to be effective.

Recommendations

On the basis of our review, we are able to make the following recommendations. The first four recommendations primarily result from our review of the highest quality intervention studies (RCTs), while the remaining recommendations stem from a separate review we conducted of the literature of predictors of HIV risk behavior in MSM of color (see Appendix D). Examples of specific recommendations by ethnicity arising from this review are listed in the sidebar on page 10.

- **Community appropriateness.** Interventions targeting MSM of color can facilitate risk reduction, and future interventions that are aimed toward MSM of color should take the

Ethnicity-Specific Recommendations

African Americans

- Design interventions with the knowledge that many African American MSM do not identify as gay and may have sex with women as well as men.[31,32]
- Acknowledge and explore the role of the church in many African American men's lives.[33]
- Take into account the increased risk for HIV that accompanies severe substance use.[32]
- Develop and implement culturally sensitive interventions. Utilize qualitative methods to ensure cultural sensitivity in the development of intervention curricula.[26]

Latinos

- Take the amount of cultural diversity in the Latino community into account (e.g., country of origin).[1]
- Explore the potential barriers such as language and level of acculturation.[34]
- Test the potential positive effects of increased community involvement.[35]
- Include questions about gay identity.[29]
- Include a focus on positive factors such as increasing resiliency and lessening psychological distress and/or social isolation.[36]
- Improve education about the relationship between risky situations or context and the likelihood of risk.[36]

Asian Americans and Pacific Islanders

- May need to target subgroups (e.g., by country of origin or ethnicity), as men from different backgrounds may have very different prevention needs.[37,38]
- Take into consideration that many Asian American and Pacific Islander MSM do not believe that HIV prevention information is relevant to them and do not perceive themselves to be at risk.[30]
- Include questions about gay identity.[30]
- May need to address language barriers and/or level of acculturation.[37]

unique needs of the target community into account. This includes considering the unique barriers to safe sex present in these populations, such as internalized homophobia, racism, poverty, substance use, and sexual identity (Choi et al. 1996; Peterson et al. 1996).

- **Skills training.** Skills training appears to achieve positive reductions in HIV risk behavior in controlled interventions of MSM of color and should be included in future interventions. This includes practical training in skills such as the correct use of condoms, but also encompasses techniques such as improving communication skills regarding negotiating safer sex practices (Choi et al. 1996; Peterson et al. 1996).
- **Theoretical basis.** Interventions should be theoretically based, and programs that have been grounded in cognitive-behavioral theory have produced the most consistent positive results in controlled interventions (Choi et al. 1996; Peterson et al. 1996). However, the focus on individual behavior may need to be balanced with cultural, social, and psychological contexts unique to the population of interest. Identifying issues unique to the population of interest is crucial. Broad social issues such as racism, poverty, and homophobia (and their individual cultural manifestations) need to be accounted for and considered. Conducting focus groups at service agencies may be one strategy for identifying their clients' specific areas of interest.
- **Multiple sessions.** Interventions should be designed with more than one session, as this may increase the chances of positively affecting behavior change (Peterson et al. 1996).
- **Local relevance.** Qualitative research may be helpful in the design of future interventions, as using these techniques can help to identify specific local issues relevant to the target population of interest. Specific issues such as local HIV prevalence rates and community resources available for MSM of color also need to be taken into consideration.
- **Sustainability.** Emphasis should be placed on sustainability of programs—particularly in community-based organizations and/or local health jurisdictions. It may be more beneficial for the community to have smaller, more focused programs that are sustainable, rather than complicated, expensive, time-consuming interventions that cannot be an ongoing resource for men in the community.
- **Accuracy of sample.** Attention needs to be paid to the participants in the interventions—particularly in the formative stages. Are they representative of the group of interest?

- **Influence of partners.** More emphasis should be placed on the influence of steady partners on risk. Contextual influences, such as partner influence, are complex to investigate, but may shed some light on relationship and sexual dynamics and any risk that may occur.
- **Standardized measures.** Outcome measures of HIV risk behavior should be standardized (such as "ever engage in unprotected anal intercourse" versus "never engage in unprotected anal intercourse"), as this makes comparison across studies more feasible. In addition, biological markers of HIV infection or incidents of sexually transmitted diseases should be included if at all possible.

Conclusion

As we enter the third decade of the AIDS epidemic, MSM communities of color continue to be at markedly elevated risk for HIV infection. Yet this review demonstrates that approaches and techniques have been developed that are effective and successful in reducing the HIV risk behavior in these communities. However, the dearth of high-quality interventions makes additional intervention research all the more imperative and limits the conclusions that can be drawn from the published literature.

It may be necessary to utilize several different approaches along a spectrum ranging from individual to community-based interventions. Taking into consideration the vast array of contexts (cultural, environmental, behavioral) in which MSM of color engage in risk behavior is of paramount importance. Rather than simplified, "one size fits all" interventions, it appears that what is needed are programs that address the complexity inherent in the sexual behavior of MSM of color. For example, further exploration of the influence of community leaders and institutions is needed, such as the role of the church in the African American community. Other strategies include social marketing (e.g., Internet-based outreach and/or interventions) and peer outreach, which may increase the ability to reach MSM of color who do not identify as gay or who congregate in venues not typically identified as being patronized by MSM. The dynamics of primary and secondary partnerships need to be examined as well, as this is also a context wherein risk behavior takes place.

The implementation of a "new generation" of future interventions with MSM of color should be a priority, and it may prove to be one of our most important weapons in the fight against HIV/AIDS.

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Appendices

A. Studies Included in the Systematic Review

B. Ongoing Studies of MSM of Color

C. References for Studies Included in the Review

D. Current Epidemiological and Behavioral Research on MSM of Color

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