California Collaborations
in HIV Prevention Research
Dissemination Project

RESEARCH SUMMARY

Systematic Review of HIV Behavioral Prevention Research Among Heterosexual African Americans

California Collaborations is a project sponsored by:
Universitywide AIDS Research Program,
University of California Office of the President
and
California State Office of AIDS

For technical assistance questions, contact:

Tom Stopka, Research Scientist
California Department of Health Services
Office of AIDS, HIV Prevention Research and Evaluation Section
1616 Capitol Avenue, P.O. Box 942732, MS 7700
Sacramento, CA 94234-7320
Phone: (916) 449-5828 Fax: (916) 449-5800
Email: **tstopka@dhs.ca.gov**

For information about the Dissemination Project, contact:

Judith Fitzpatrick, Project Coordinator
Universitywide AIDS Research Program
University of California
Office of the President
300 Lakeside Drive, 6th Floor
Oakland, CA 94612-3550
Phone: 510-987-9854 Fax: 510-835-4220
Email: **judith.fitzpatrick@ucop.edu**

This research summary was supported by a grant from the State of California, Department of Health and Human Services, Office of AIDS. Direct correspondence to Dr. Lynae Darbes, University of California, San Francisco, 74 New Montgomery St., Suite 508, San Francisco, CA 94105 or **ldarbes@psg.ucsf.edu**.

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Lynae A. Darbes, Center for AIDS Prevention Studies, UCSF,
and Cochrane Collaborative Review Group on HIV Infection and AIDS

Gail E. Kennedy, Institute for Global Health, UCSF,
and Cochrane Collaborative Review Group on HIV Infection and AIDS

George W. Rutherford, Institute for Global Health, UCSF,
and Cochrane Collaborative Review Group on HIV Infection and AIDS

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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 first. The populations include African American heterosexuals, Hispanic/Latino heterosexuals, and MSM 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 PDF format on the UARP website: **http://uarp.ucop.edu**.

Introduction

This Research Summary reviews the effectiveness of prevention interventions conducted throughout the United States and designed to serve heterosexual African American communities. It focuses on the key elements of interventions proven effective in terms of behavioral change. A standard set of inclusion and exclusion criteria was developed, and information was extracted from a wide range of sources in order to complete the research synthesis on available outcome studies. A total of 46 studies of the highest methodological quality are included in the analysis.

The research team included Lynae Darbes, Center for AIDS Prevention Studies (CAPS), UCSF, and Gail E. Kennedy and George W. Rutherford, Institute for Global Health, UCSF. All three are members of the Cochrane Collaborative Review Group on HIV Infection and AIDS.†

Background

Evidence-based medicine is "the conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients."[1] This model of medical practice has been extended to public health practice, such as the CDC's (Centers for Disease Control and Prevention) recent Task Force on Community Preventive Services. Central to this practice is the identification of the best evidence to answer specific clinical questions and the critical appraisal of that evidence. One such approach is to conduct a systematic review. Systematic reviews draw on the methods of meta-analysis and combine a comprehensive and detailed search for relevant studies, a critical appraisal of the quality of included studies, a qualitative synthesis of study findings and, if appropriate, a meta-analysis of the data to determine the combined effect size of similar interventions. That methodology has been used to prepare this systematic review, which endeavors to identify the best evidence of HIV prevention interventions that are effective in African American heterosexual populations throughout the United States.

Several previous reports have reviewed the literature regarding the effectiveness of interventions to reduce HIV for various risk groups, such as adolescents[2,3,4] and women.[5,6] However, fewer reviews have focused specifically on African Americans,[7,8] as this systematic review does. Yet African Americans, compared to other racial groups in the United States, have the highest HIV prevalence, the highest incidence of HIV/AIDS, the highest HIV mortality, and the greatest number of years of potential life lost.[7] Further, African Americans are at risk of HIV infection through all the major modes of transmission. Thus, it is important to systematically review our current knowledge of prevention interventions for heterosexuals so that future research efforts can be implemented in the most effective manner, thereby preventing additional negative consequences from HIV in the African American community.

*The UARP-OA–funded community collaborative research projects were not yet available when these reviews were compiled.

†The authors would like to thank their collaborators from the Centers for Disease Control and Prevention's Prevention Research Synthesis project, who contributed to several aspects of this report, including literature searches and the meta-analysis: Nicole Crepaz, Cynthia Lyles, Lev Zohrabyan, and Greet Peersman. Their work contributed greatly to the quality and completion of this document.

HIV Infection and AIDS Among African Americans

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

Although the epidemic has reached into most segments of society, the disparity of its scope continues to be striking. Recent statistics have demonstrated a significant overrepresentation of people of color among new HIV infections. With regard to African Americans specifically, this disparity has been evident since the first reports of what we now call HIV/AIDS. As early as 1982, African Americans were found to comprise 23% of the cases reported, while making up only 12% of the entire U.S. population.[9,10] This trend has continued, and worsened. Recent statistics show that over 50% of new HIV infections are occurring among African Americans,[11] although they still account for only about 12% of the U.S. population.[12]

"Among women and adolescents, African Americans have the most cases of HIV infection and AIDS compared to other racial groups."

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, and youth/adolescents. For example, of the over 25% of AIDS cases in men in the United States contracted through drug use and heterosexual transmission, more than half were in African American men. Among women and adolescents, African Americans have the most cases of HIV infection and AIDS compared to other racial groups.[11] These figures underscore the necessity for examining evidence for prevention interventions aimed at African Americans, focusing on the primary risk groups.

Youth/Adolescents

The challenge to improve prevention programs targeting sexually active youth/adolescents is a very important one, as this group exhibits high levels of sexual risk behavior. A large proportion of the young adults currently infected with HIV or diagnosed with AIDS were most likely infected during adolescence.

Psychological factors unique to this age group (13 to 24) place adolescents at increased risk due to their lack of perceived vulnerability. Changing risk behavior inherently involves identifying oneself as being at risk, and most surveys of adolescents have found that this age group does not perceive itself to be at risk for most negative outcomes, such as car accidents, HIV/STD infection, and pregnancy.[13,14] Adolescents are also at risk through several pathways; thus, interventions need to be tailored to the specific population of youth that is being targeted—MSM, heterosexually active youth, and so forth.

For African Americans, this group is at even greater risk; African Americans account for approximately 35% of reported AIDS cases in this age group.[15] And for 13- to 19-year-old females, heterosexual contact accounted for 50% of the new and cumulative cases of HIV infection.[11] In addition, for males and females alike, a high percentage of both HIV infection and AIDS cases are of unknown risk category—between 28% and 55%. Given this "unknown" category, it is possible that the numbers given above for the percentages per risk category could be significantly underestimated for African American adolescents.

African American Heterosexuals

United States

Although heterosexual contact is the primary mode of HIV transmission around the world, in the United States it accounts for only approximately 33% of new infections.[11] Among African Americans, a gender difference is evident. For African American men, heterosexual contact accounts for 11% of the cumulative cases of HIV infection and 8% of the cumulative AIDS cases. However, for African American women, heterosexual contact was identified as the primary source of infection in 40% of the cumulative cases of HIV infection and 38% of cumulative AIDS cases.[11] Compared to Whites and Latinos, the rates for African American men are higher for heterosexual contact, while the high rates for African American women are very comparable to those for White and Latina women.

In addition to the rates of infection and AIDS cases described above, several survey studies have found increased HIV risk behavior in heterosexually active African

Americans, such as the National Survey of Men[16] and the National AIDS Behavioral Surveys.[17]

California

Among Californians with AIDS, the percentage who were African Americans increased from 13.6% in 1988 to 23.2% in 1998. The overrepresentation of African Americans noted above is also present in California: African Americans represented 7.1% of the state's population in 1988, and 6.9% in 1998. Three California counties account for approximately two-thirds of the cumulative AIDS cases in African Americans: Los Angeles, San Francisco, and Alameda. African Americans exhibited the highest incidence rates compared to other ethnic groups in California between 1986 and 1998.[18]

Among African Americans in California, the general pattern of incidence rates shows a rapid increase occurring from 1992 to 1996, followed by a fairly dramatic decrease through 1998. In general, when looking at specific age groups among African Americans, the incidence rates follow the same pattern described above. One striking example of this pattern is that up to the early 1990s, AIDS incidence in African American females quadrupled in the 20-to-29 age group, and then rates began to decrease. However, for all ages, the percentage of African American women who attribute the source of their HIV infection to heterosexual contact is lower than that of White or Latina women, which is different than the overall U.S. incidence.[18] For men, the pattern of incidence described above continues, and is consistent across most age brackets: 20–29, 30–39, 40–49, and over 50. (Statistics on the number of African American men who attribute their risk to heterosexual contact were not available.)

Given that heterosexual contact is the source of approximately one-third of new HIV cases and is the most significant mode of HIV transmission for African American women, evaluating prevention programs that address this population is a priority.

Objectives and Method

The objectives of this review were fivefold:

- To locate and describe available outcome studies evaluating the effects of behavioral prevention interventions for HIV in heterosexual African Americans in the United States.
- To undertake a critical review of these studies.
- To synthesize the broad question of prevention effectiveness for reducing HIV-risk behavior in heterosexual African Americans (including injection drug users and youth/adolescents).
- To summarize the effectiveness of these interventions among African Americans and identify the best evidence of effective interventions for future research, policy, and practice.
- To identify gaps in rigorous research in the field.

Inclusion Criteria

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

- 100% of the sample was African American.
- At least 80% of the sample was African American.
- African American participants were examined separately if less than 100% of the sample.

A strict, multistep process was used to review the studies. The researchers sought to identify studies aimed at changing behavior associated with HIV risk in African American heterosexuals. Literature searches were first conducted to identify published studies, and researchers in the field were contacted in order to identify unpublished studies. (See Appendix A for a description of the search process.)

After the studies were identified, they were screened and then evaluated for methodological quality, or how well the studies were conducted. It is important to evaluate the quality of a study, since the conclusions from a poorly conducted study may not be as valid as those drawn from a well-conducted one. The selection and evaluation processes are described in the sections that follow.

Selection Strategies

Studies that evaluated the effects of behavioral, social, or policy interventions on at least one outcome measure related to HIV transmission were included. Experimental and observational studies that utilized a comparison group (including pretest and post-test design) were considered to meet the inclusion criteria.

Studies were reviewed for relevance based on types of participants, interventions, outcome measures, and study design. Two independent reviewers abstracted appropriate information using a standardized data abstraction form.

Information retrieved from the studies included details of the interventions and other study characteristics. Any disagreements were resolved between the two reviewers, and when necessary, with a third party.

Studies were stratified according to percentage of subjects who were African American, study design, targeted risk group of intervention, and quality in order to better evaluate and summarize outcome information.

Participant Makeup

A total of 98 studies were initially identified. After screening for sample makeup* and methodological criteria (see Methodological Quality Measures) 49 studies were selected for review:

- 18 studies whose samples were composed of 100% African Americans participants
- 17 studies whose samples had at least 80% African American participants, with no separate analyses for the African American population
- 14 studies whose samples were less than 100% African American, with separate analyses for the African American population

Intervention Types

Three types of interventions were included:

- **Behavioral interventions:** Interventions aimed at changing individual behaviors only, without explicit or direct attempts to change the norms of the community or the target population as a whole.
- **Social interventions:** Interventions designed to change not only individual behaviors but also social norms or peer norms. Strategies such as community mobilization, diffusion, network-building, and structural and resource support are usually used to bring about changes in social norms and/or peer norms.
- **Policy interventions:** Interventions aimed at changing individual behavior or peer/social norms or structures through administrative or legal decisions. Examples include needle exchange programs, condom availability in public settings, and mandated HIV education in all schools of a district.

Outcome Measures

Studies that reported any type of outcome measure related to HIV transmission were included: knowledge, attitudes, intentions, self-reported risk behavior, biological outcomes, and so forth.

Methodological Quality Measures

The quality of the studies was assessed in several ways, taking into account the inclusion criteria and methods used in previous systematic reviews. The researchers then assessed the following four criteria, which were those deemed most appropriate for the types of studies included in the review:[19]

- Randomization
- Attrition
- Protection against contamination
- Training/makeup of the facilitators of the intervention

Randomization

Randomization was assessed according to the standards of the Cochrane Collaboration.[19] 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.

Attrition

If attrition (the number of participants who dropped out between baseline data collection and follow-up) was less than 20% of the subjects randomized, the study was given full credit for this category (1 point). If more than 20% attrition occurred or if the information regarding attrition was unclear, the study did not receive credit.

Contamination

If proper methods were utilized to protect against any contamination of the intervention (such as 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 credit. If the

*All studies with samples that were at least 50% African American were considered. However, those with less than an 80% majority and no separate analysis for that population were culled out.

study design did not warrant a protection against contamination, this criterion was not used, and the study could receive a maximum of 4 points.

Training and Makeup of Facilitators

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. (This issue is not applicable to all studies.)

Scoring

Studies that received 75–100% of possible points were deemed "good" studies. Those that received 50–75% of possible points scored "fair." And studies that received less than 50% of possible points were rated as having significant methodological limitations.

This method of assessing quality by number of limitations has been used by the CDC's Task Force on Community Preventive Services.[20]

Findings

This section summarizes the findings from the systematic review of the studies. For detailed descriptions of the individual studies, please refer to Appendix B. (Studies conducted in California are indicated in boldface in that appendix.) Where relevant, references to individual studies are given in parentheses below; full citations for the original study reports can be found in Appendix C.

Adult Heterosexual Studies

Several of the studies focused on the prevention of HIV infection through heterosexual behavior. Of the studies that were 100% African American, approximately half focused exclusively on women, while the other half focused exclusively on men. This distribution emphasized the necessity of tailoring interventions by gender, because heterosexual men and women have different prevention needs, as discussed further below (see Discussion). The studies in which African Americans did not comprise the whole sample were also more mixed in their gender composition.

The interventions were primarily based on cognitive behavioral theories, which emphasize helping people to change aspects of their behavior by changing their perceptions and understanding. For example, an intervention may attempt to influence whether a person perceives that their behavior may place them at risk for HIV infection. Most of the interventions used components such as information and skills training. Examples of skills training include helping women to learn negotiation skills for bringing up the topic of condom use with their partners, and teaching actual skills related to using condoms themselves. Many of the interventions were also culturally tailored to African Americans. For example, they utilized African American peer educators, African American–oriented music or movies, or included discussions of the participant's experience of being African American.

For African American heterosexuals, the most effective interventions:

- Included skills training
- Were tailored to the target group (e.g., women)
- Entailed several sessions, rather than taking place on a single day

Several studies were aimed at patients attending sexually transmitted disease clinics. These studies often incorporated videotape presentations and small-group sessions. In general, these interventions were successful at positively affecting patients' sexual behavior. It is also encouraging that these interventions were quite feasible and could conceivably be implemented at relatively low cost by clinic staff.

Overall, 26 studies among African American heterosexuals were identified that met the inclusion criteria (12 of these studies had 100% African American participants). The most successful interventions included skills training, were tailored to the target group (e.g., women), and were conducted over several sessions, rather than taking place on a single day.

Youth/Adolescent Heterosexual Studies

Six of the studies surveyed were conducted with samples of 100% African American adolescents. Similar to studies of adult heterosexual populations, these interventions included a variety of approaches. The highest quality studies were theoretically based, incorporated skills training, were culturally sensitive, and entailed multiple sessions. These studies demonstrated that adolescents' behavior could be positively influenced. Without exception, these studies demonstrated positive changes in HIV risk behavior of the adolescent participants. This evidence is promising for future interventions for this population.

In the studies that included African American adolescents in addition to youth of other ethnicities, goals of positive behavior change were also met. Youth were recruited from many types of settings, including schools and runaway shelters. These studies were also theoretically based and were successful with heterogeneous populations (e.g., mixed race and mixed gender). Especially promising were results obtained for younger adolescents who were just becoming sexually active (e.g., Levy et al. 1995), as this is a population that could greatly benefit from obtaining skills to negotiate and engage in safer sexual practices both prior to and coinciding with beginning intercourse.

"Overall, HIV prevention interventions have positive effects on unprotected sex in African Americans."

Injection Drug Use Studies

Although the focus of this Research Summary is on heterosexual behavior, studies describing interventions conducted with injection drug users were also reviewed, because many of these studies attempted to change sexual behavior in addition to drug use behavior. Most of these reported on outcomes having to do with drug use behavior rather than sexual behavior, which limits their usefulness for those interested in interventions focused on sexual behavior. (Detailed descriptions of the studies are presented in Appendix B.) In general, however, the interventions demonstrated that, for this particular population, it appears to be much easier to change drug use behavior than sexual behavior that may place one at risk for HIV infection. The components of these interventions resembled those focused on sexual behavior, in that they were theoretically grounded and entailed multiple sessions. One observation about the studies was that women seemed to be underrepresented in the samples.

Discussion

Forty-six high-quality, well-designed, and well-executed studies that reported on interventions specifically addressing African American heterosexuals were reviewed. (Three studies of the original 49 were not given quality ratings or reviewed due to their not being randomized controlled trials; however, these studies are included in the tables in Appendix B.) Certain groups of African Americans are at increased risk for HIV infection. About half (25) of the studies focused on adult heterosexuals, 12 on adolescents, and 9 on heterosexuals with exposure to injection drug use.

Of the 46 studies reviewed, more than half demonstrated significant levels of behavior change following an intervention aimed toward 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. Some studies reported the level of risk in the participants who received the intervention as being cut in half (e.g., Malow et al. 1994).

However, many of these positive outcomes eroded over time. For example, positive changes that were observed at 3- to 6-month follow-ups dissipated by the 9- to 12-month follow-up, and the level of risk behavior gradually increased (e.g., Stanton et al. 1996a, b; Dancy et al. 2000; Kalichman et al. 1999b). It is impossible to discern the lasting impact of interventions for studies that reported positive behavior change but had follow-ups of less than three months.

Components of Effective Interventions

Certain components were shared by the majority of interventions that achieved positive behavioral changes, including skills training, cultural sensitivity, gender sensitivity, and interventions longer in time, number of sessions, or both. General statements regarding these components include the following.

Interventions designed to reflect specific needs and/or characteristics of the African American community produced more positive behavior change. For example, some studies altered traditional prevention messages to make them more relevant to the African American community, and most had African American facilitators. Although this approach would necessitate that interventions be delivered to groups composed of all African American participants, it appears that this is an important element for an effective intervention. When culturally sensitive interventions were compared with less culturally relevant interventions, without exception, the more sensitive intervention produced more positive behavior change.[21]

Interventions that took into account gender differences as well as cultural differences were more effective. Several studies (e.g., Cohen et al. 1992a; O'Donnell et al. 1995) reported on differential effects of interventions due to gender. For example, condom use is a very important aspect of HIV prevention; however, it is a method that is entirely dependent upon the male partner's choice. Interventions that were aimed toward

increasing condom use by men were most effective when addressing behavioral skills to teach men proper condom use technique, whereas interventions addressing women were more effective when focused on training in communication skills, to help them better discuss their preference for condom use with partners. (Condom-use messages may not seem relevant to women, who often feel that, while they might agree in theory, whether or not a condom is used is ultimately not under their control.) However, several interventions conducted exclusively with women produced positive results (e.g., Carey et al. 2000; Kelly et al. 1994), suggesting that this is a successful means of improving HIV prevention with women.

Longer duration interventions in general had more positive effects (e.g., Rotheram-Borus et al. 1997; St. Lawrence et al. 1995). One study tested whether it was the actual amount of time spent in the delivery of the intervention or the number of sessions that was more influential. The authors reported that even though two groups had spent the same amount of time in sessions (10.5 hours), those participants who had received the 10.5 hours over seven sessions demonstrated significantly more positive behavior change than those participants who had received the 10.5 hours over three sessions.[22] Although this might increase the difficulty and cost of future interventions, this approach could improve the likelihood of long-term positive behavior change.

Given that sexual and drug-use risk behaviors can be experienced as pleasurable, changing to what is seen as less pleasurable behaviors can be met with resistance. The cognitive changes needed to effect such behavior change require time for the new information to be incorporated.[23] Providing information on one day may not be sufficient to change behaviors that have been in place for years. However, there is evidence that there could be an optimal length of intervention—interventions that are too intensive may not prove feasible, while interventions that are too brief may not produce significant and/or longstanding change. Interventions composed of three to five sessions appeared to balance the need to provide multiple sessions and achieve positive effects while remaining feasible (e.g., DiClemente and Wingood 1995; Kelly et al. 1994). Observations that longer interventions tend to be more successful has also been discussed in earlier reviews of HIV prevention interventions.[4]

Peer educators were shown to be as effective as professional staff. Several interventions found no differences in the effectiveness of the intervention when delivered by peer educators versus professional staff. This result was consistent for both school-age populations[24] and adults.[25] This finding could be important in determining the feasibility of translating interventions to the community. Community agencies often do not have the staff or funds to provide facilitators comparable to those used in academic interventions. However, if the same training used for peers in the academically based interventions can be used to train volunteers in schools or community-based agencies, the chances of reaching those people most at risk are increased, at substantially less cost.

Meta-Analysis of Studies

Meta-analysis is a technique that allows statistical information from several studies to be combined. When more people (research participants) are included in statistical analysis, the chance of detecting a valid statistical effect is increased. It allows one to make stronger conclusions, because the evidence is more convincing when it is based on information gathered from several thousand people, rather than a few hundred (and many studies have less than a hundred participants).

Meta-analysis can sometimes be useful in demonstrating inconsistent findings. For example, an intervention might have been successful in positively influencing sexual behavior (such as increasing the participant's condom use frequency). However, another study, using the same intervention techniques, might have been unsuccessful in changing participants' behavior. Which study do you take to be valid? Can they both be valid? Using meta-analysis, one can combine the data from several studies—regardless of what their original findings were—and this may help to reach stronger conclusions. This

Ongoing Studies

Several well-designed, theoretically grounded ongoing studies are conducting interventions to reduce HIV risk behavior in African Americans (see Appendix D). These studies incorporate long follow-up periods in order to monitor long-term behavior change (e.g., two years post-intervention). A number of these studies focus exclusively on female African American adolescents and are both culturally and gender sensitive. Others of these studies address heterosexual risk and focus exclusively on either men or women. This type of intervention has produced more positive results than interventions delivered to a mixed-gender sample.

technique does not necessarily "prove" findings, but it does allow us to make conclusions and/or recommendations based on the specific information included in that particular meta-analysis.

For this meta-analysis, a subset of the interventions included in the systematic review was used. The studies included were those that gave outcomes for unprotected sex or condom use in the participants. The analyses included data from over 7,000 participants in 24 intervention studies. After the analysis was conducted, the results showed that, overall, HIV prevention interventions have positive effects on unprotected sex in African Americans. Significant results were found for both adult and adolescent studies. They also confirmed the finding discussed above, that altering the sexual behavior of injection drug users appears to be more challenging.

"Single-gender samples produced significant results in positively changing behavior."

Interesting results were found with regard to ethnicity and gender. Preliminary findings indicate that studies composed of 100% African American participants produced statistically significant findings, while those studies that were 80–99% African Americans did not. This may indicate that cultural sensitivity is an important component, as those studies with exclusively African American participants tended to be culturally tailored.

Similarly, with regard to gender, studies that consisted of single-gender samples (either all men or all women) produced significant results in positively changing behavior, while results for mixed gender studies did not produce results that were as strong. This echoes the earlier conclusion that it may be important to tailor interventions by gender in order to maximize the chances of producing positive behavioral changes.

Areas Where Further Research Is Needed

In a previous review of HIV prevention interventions for African Americans and Latinos,[8] it was noted that at the time no studies focused specifically on heterosexual men. This gap has now been addressed, at least for heterosexual African American men, as several of the studies in this review are in this population (e.g., Kalichman et al. 1997, 1999a). However, the following gaps in research were identified.

Younger Adolescents

Although studies targeting African American adolescents made up one of the best represented groups in this review, few of these studies have focused on younger adolescents. This group, particularly those who have not yet become sexually active, could benefit greatly from interventions that increase their self-efficacy in prevention behaviors, such as delaying initiation of intercourse and consistent use of condoms after initiating sexual behavior. Instilling skills and knowledge that increase the performance of positive behaviors as they become relevant (rather than attempting to change already ingrained risk behavior), might prove more effective in preventing HIV infection for this population.[26] In addition, perceptions of vulnerability might be more amenable to change in younger adolescence,[27,28] while older adolescents may be harder to influence, once their perceptions have been set.

Men in Prison and Their Partners

A review by Marin[8] identified another research gap that appears to still exist—that of men in prison. Men in prison mirror those most at risk for HIV infection—young people of color and injection drug users.[29] The researchers were unable to identify any intervention trial that specifically targeted this population and met the inclusion criteria (see the Selection Strategies section). At the current time, this group appears to be understudied. However, there is one ongoing study evaluating the effect of peer-led interventions focusing on increasing HIV knowledge and condom use among male prison inmates prior to their release.[29] Another current study is investigating the effects of an intervention for women visiting their incarcerated partners.[30] Focus groups have determined that this is a potentially high-risk population needing additional investigation into their particular needs.

Time for Follow-up

A final gap in the research is that of allowing 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 to

Gaps in Research

- Studies on younger adolescents
- Studies on men in prisons and their partners
- Studies on men who have sex with men and women (MSMW)
- Studies that incorporate adequate follow-up time

determine whether effective behavior change has occurred.[8] The need for studies that include a follow-up period of at least six months should be emphasized.

Conclusions and Recommendations

In this systematic review, 46 high-quality, well-designed interventions aimed toward reducing the risk of HIV infection for heterosexual African Americans in the United States were examined. A rigorous search of the literature was conducted, and leading researchers in the field were contacted to ensure the comprehensiveness of the review. The interventions were then culled to just those in which African Americans comprised 100% of the participants, those that contained any proportion of African Americans and also conducted separate analyses for those participants, and those in which African Americans made up least 80% of the sample.

Standardized methodological quality ratings were also applied to the studies to ensure that only well-designed interventions were included. In general, the studies were of high methodological quality. Significant attrition was a common limitation, which is not surprising, as the risk groups examined tend to be extremely difficult to retain in research studies over long periods of time.

In reviewing the interventions all together, certain patterns emerged. Interventions showing positive results were typically grounded in theory, provided the participants with skills training, were culturally sensitive to the unique needs of African Americans, 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 needle sharing, delaying the beginning of intercourse, increasing self-efficacy for protective behavior, and improving communication with partners regarding safer sexual practices. All these outcomes are associated with decreasing HIV infection.

The African American community continues to be at increased risk for HIV infection, yet this review demonstrates that some approaches and techniques have been developed that are effective in reducing the HIV risk behavior of the highest risk groups in this community. The identification and implementation of interventions like these, which have been shown to be successful, are important weapons in the fight against HIV and AIDS, both in the African American community and in the general population.

Recommendations

- Culturally sensitive interventions facilitate risk reduction, and future interventions aimed toward African American participants should take the unique needs of this community into account.
- Interventions focusing on condom use need to be individually tailored for men and women in order to achieve the optimal benefit for both genders.
- Skills training produces positive reductions in HIV risk behavior among African Americans, 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.
- Interventions should be theoretically based, and programs that have been grounded in cognitive-behavioral theory have produced the most consistent positive results.
- Intervention design should include more than one session—but not necessarily more time—as this positively affects behavior change. Although multiple sessions might appear less cost effective on the surface, it will improve the likelihood that behavior change will be maintained over longer periods of time.
- Interventions should incorporate "booster sessions" into their design in order to prolong the behavior change achieved in the short term following an intervention, because positive behavior changes observed following an intervention often disappear after several months. Booster sessions can prevent the recurrence of high-risk behavior.
- Peer educators often have the same degree of efficacy as trained health educators. Thus, using peer educators increases the likelihood of maintaining the integrity and effectiveness of interventions delivered by community-based organizations. Use of peer educators would also increase the cost effectiveness of translating some interventions from research to the community.

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