Journal of Black Psychology
36(2) 127–143

DOI: 10.1177/0095798409356686
http://jbp.sagepub.com
SAGE

The Impact of Perceived Group Support on the Effectiveness of an HIV Prevention Intervention for African American Women

Faye Z. Belgrave[1], Maya Corneille[2], Kristina Hood[1], Julia Foster-Woodson[1], and Angela Fitzgerald[1]

Abstract

The enormous HIV/AIDS disparity among African American women and women in other ethnic groups dictates the need to implement the most effective HIV prevention interventions. This study examined the impact of perceived group support on HIV protective behaviors (i.e., attitudes and behaviors related to condom use, alcohol, and drugs) of African American women participating in an HIV prevention intervention. Participants were 398 heterosexual, unmarried African American women older than 18 years who agreed to participate in Sisters Informing Sisters on Topics about AIDS, a widely used HIV prevention program for African American women. Regression analyses revealed that higher perceived support contributed to (1) higher condom negotiation efficacy, (2) higher condom use efficacy, (3) consistent condom use for sexually active participants, (4) higher perception of drug harmfulness, and (5) drug disapproval at posttest. These effects were found while controlling for pretest measures of condom and drug attitudes and use along with age,

[1]Virginia Commonwealth University, Richmond, VA, USA
[2]North Carolina A&T State University, Greensboro, NC, USA

Corresponding Author:
Faye Z. Belgrave, Center for Cultural Experiences in Prevention, Department of Psychology, PO Box 842018, Virginia Commonwealth University, Richmond, VA 23284-2018, USA
Email: fzbelgra@vcu.edu

partner status, length of relationship, and education. The findings suggest that HIV intervention efforts should attend to ways in which women receive and provide support to one another.

Keywords

perceived support, HIV prevention

There are enormous health disparities with respect to HIV/AIDS among African American women and women in other racial/ethnic groups. While African American women make up about 13% of the total female population in the United States (U.S. Census, 2007), they comprise more than half (64%) of the number of HIV/AIDS infections among women (Centers for Disease Control and Prevention [CDC], 2008). The rate of HIV/AIDS diagnoses for African American women was approximately 23 times the rate for White women and 4 times the rate for Hispanic women (CDC, 2008). Moreover, in 2004 HIV/AIDS was the leading cause of death among African American women aged 25 to 34 years (CDC, 2008). Heterosexual contact is the primary mode of HIV transmission for African American women and accounts for 74% of HIV/AIDS diagnoses among African American women (CDC, 2007).

Moreover, women with HIV/AIDS are not the only targets of the disease. Remarkable advancements have been made in the reduction of perinatal transmission through the use of HIV testing and antiretroviral therapy during pregnancy and delivery. Despite these advancements, it is estimated that 90% of HIV infections that occur among children are a result of vertical transmission from a mother to her infant (Newman, 2004). Of the perinatally infected persons living with HIV/AIDS, 66% were African American (CDC, 2008).

Given the prevalence and consequences of HIV, we must continue to refine and tailor HIV prevention programs in order to enhance effectiveness. One way to accomplish this is to identify the processes or the mechanisms through which HIV prevention interventions work.

The CDC has identified several evidence-based programs for African American women. See the Diffusion of Effective Behavioral Interventions project (DEBI) at http://effectiveinterventions.org/go/about-debi for a list of these programs and additional information about these programs (Center on AIDS and Community Research, 2008). These programs have shown effectiveness in reducing HIV risk with respect to increasing condom use, condom negotiation skills, partner communication, and other HIV protective behaviors. While these programs have demonstrated effectiveness in randomized trials, we know less about the mechanism or processes through which these interventions work. This is the focus of the current study. Specifically, we evaluate one component found in most HIV prevention programs for African American women—perceived group support (Wingood & DiClemente, 2006). We assessed whether higher levels (compared with lower levels) of perceived support from group members and facilitators helped explain HIV protective behavior among African American women enrolled in an HIV prevention program. HIV protective behaviors included both attitudes and behaviors with regard to condom use along with drug attitudes and behaviors.

The intervention implemented was Sisters Informing Sisters on Topics about AIDS (SISTA). The SISTA curriculum is one of the original interventions identified as effective for African American women by the CDC and continues to be one of the most widely disseminated HIV prevention curriculums for African American women. An additional drug education component was added to the SISTA curriculum. This component addressed the role of drug use (e.g., mostly alcohol and marijuana) in sexual risk and protective behaviors.

The overall objectives of the SISTA curriculum are to increase assertiveness, condom negotiation skills, and coping skills while promoting ethnic and gender pride and empowerment. Elements of the SISTA intervention involve (1) small-group sessions with discussions, role-playing activities, and skill-building activities; (2) using peer facilitators who are similar to and who can relate to participants; (3) activities and materials designed to promote ethnic and gender pride and self-worth; (4) teaching women skills in sexual assertiveness and how to negotiate with their partners; (5) implementing activities and lessons that encourage favorable condom attitudes and norms and how to correctly use condoms; and (6) discussions of cultural and gender issues as they relate to safer sex negotiation and practices. Additional information about drugs included (1) information about the drugs most commonly used and how these drugs influence sexual decisions; and (2) discussions of how alcohol and other drugs affect proper condom application.

Participants met in groups comprising 8 to 14 women for 2 hours per week for 5 weeks. An additional booster session was held 2 to 3 months after the conclusion of the 5-week sessions for participants to share how they had applied the program skills and information to their lives. Participants were encouraged to meet informally after the conclusion of the sessions; however, without the resources of the program only a few groups were able to do so. The sessions were designed so that lessons, activities, and practical demonstrations were carried out in a manner in which women could learn from and be supportive of one another. At each session, women shared their experiences on a variety of topics related to HIV protective and risky behaviors. For example, they discussed their experiences negotiating condom use with partners, asking about partner's sexual history, and appropriately using condoms. During discussion and practice exercises, group members and peer facilitators provided feedback, and encouraged and affirmed the successes of one another.

Women connected to group members and facilitators because of their commonalities as women and persons of African descent. However, how support is perceived and experienced is variable as studies have shown that individual-level factors may affect how support is perceived and received (Albarracín, Durantini, & Earl, 2006; Helgeson, Cohen, Schulz, & Yakso, 2000; Klaw & Humphreys, 2004; Lee, Arozullah, & Cho, 2004). For example, Helgeson et al. (2000) examined individual differences in how support was received in a breast cancer intervention and found differences in receipt of support. They further found that information-based groups were more beneficial to those with fewer personal resources whereas peer discussion groups were more beneficial to those who lacked support. We expected that women in the intervention who perceived higher levels of support from the group would report more HIV protective behaviors at posttest than women who did not perceive high levels of support.

Theoretical Framework for Study

Two theoretical perspectives provided the framework for the current study, relational theory and Africentric theory. Relational theory assumes that interpersonal relationships are central to women's understanding of herself and others (Miller, 1991). According to relational theory, mutually fulfilling relationships are central to women's psychosocial functioning and general well-being (Jordan, Kaplan, Miller, Stiver, & Surrey, 1991). Africentric theory assumes that there are core values and a worldview among people of African descent. The African worldview consists of African values, ways of accessing knowledge, ways of defining reality, ways of governing and interpreting behavior, social relations, and designing environments to sustain healthy, adaptive functioning among people of African descent (Grills, 2004). Of relevance to this study is the Africentric value of a collectivist and interpersonal orientation whereby concern is for the group as well as the individual (Belgrave & Allison, 2006; Nobles, 2004). Both theoretical perspectives would suggest that interventions for African American women should provide an environment and context in which women are part of a group in which positive interpersonal relationships and support are provided to and by group members.

While studies could not be identified that specifically evaluated how perceived support from women in an HIV prevention intervention influenced

HIV protective behaviors, related literature and research support the benefit of group support for HIV risk reduction.

Some of the literature has addressed the role of group support for persons living with HIV/AIDS. In a qualitative study of group-level interventions for an ethnically diverse sample (24% African Americans) of persons living with HIV, Hyde, Appleby, Weiss, Bailey, and Morgan (2005) reported that group-level interventions are beneficial to participants. Group-level interventions provide the opportunity to build supportive relationships, experiential learning, and a safe place to learn risk reduction and HIV disclosure skills. In this study, participants spoke favorably of the group intervention, suggesting that group interactions should be an essential prevention strategy for people living with HIV (Hyde et al., 2005). Rotheram-Borus et al. (2001) also evaluated a prevention intervention for an ethnically diverse sample (27% African Americans) of males and females living with HIV. They found that participants in the intervention condition had a significant increase in social support coping and a significant decrease in risky sexual behaviors following the intervention. In a review of HIV prevention interventions, DiClemente and Wingood (1995) reported that group-level interventions with a social support component tend to have more successful outcomes at follow-up than those without this component.

Research on sexual risk behaviors and peer and group support demonstrate the positive influence of such support. St. Lawrence et al. (1998) found that adolescent females who were inconsistent condom users did not have a supportive network. They note that peer and group interventions enhance condom acceptability in addition to providing support for adopting preventative behaviors (St. Lawrence et al., 1998). In a study of African American college students, Mancoske, Rountree, Donovan, and Neighbors (2006) found that those who reported consistent condom use also reported that their friends encouraged them to use condoms. In addition, those who reported consistent condom use also reported talking with their friends about safer sex practices and regularly carrying a condom.

In summary, the literature suggests that group support is a key component of successful HIV prevention interventions. And this component might be especially beneficial for African American women given relational and Africentric values of communalism and interdependence. At the same time, group support may be delivered and perceived differently by group members.

Purpose of Study and Hypotheses

The purpose of this study was to determine the effects of perception of support from group members and facilitators involved in an HIV prevention intervention and whether or not perception of support accounted for HIV protective and risky behaviors at posttest. HIV protective outcomes included condom use efficacy, condom negotiation efficacy, attitudes toward condoms, and condom use. The program also intended to reduce drug use as a risk factor for HIV and included alcohol and marijuana attitudes and use as additional outcomes.

Hypothesis 1 predicted that higher perceived support will be associated with higher condom use efficacy, condom negotiation efficacy, more positive attitudes toward condoms, and greater condom use at posttest after accounting for the effects of pretest scores on condom attitudes and use, age, education, partner status, and relationship length. Hypothesis 2 predicted that higher perceived support will be associated with higher drug disapproval, higher perceptions of drug harmfulness, and lower marijuana and alcohol use at posttest after accounting for the effects of pretest drug attitudes and use scores, age, education, partner status, and relationship length. Along with condom and drug use pretest scores, age (Corneille, Zyzniewski, & Belgrave, 2008), education (Bowleg, Belgrave, & Reisen, 2000), and relationship status and length (Crosby et al., 2000) were included as control variables as these variables have been shown to be associated with HIV risk and protective behaviors.

Method

Participants

Participants included 398 African American women who identified as unmarried and heterosexual and who had participated in at least three (out of five) sessions of the HIV prevention curriculum. Participants who did not identify as unmarried or heterosexual were excluded from the analyses because the condom-related outcome variables used in this study may not be as relevant for these participants. Additionally, individuals who attended only one or two sessions were not considered "program participants" because they received less than half of the session content. The program had an 81% retention rate, with 324 participants completing the posttest. Participants' age ranged from 18 to 73 years, with a mean age of 22.29 years ($SD = 7.78$). Most participants (80%) were between the ages of 18 and 23 years (two participants were 61 years or older). In terms of level of education, 45% reported their highest level of education as having completed high school/GED or less; 55% reported that they attended "some college" or received a college or graduate degree. With respect to relationship status, about half (49%) of participants reported that they had a "main partner." For participants who reported having a "main partner," 41% described this relationship as 1 year or less, 21% reported that this relationship was between 1 year and 2 years, and 38% described that their relationship was longer than 2 years.

Measures

Measures of drug attitudes and behaviors were developed as part of the Centers for Substance Abuse Prevention's national cross-site evaluation (Springer et al., 2004) and have been used with other African American populations. All other measures were obtained from SISTA program evaluation materials distributed with the curriculum to assess program effectiveness.

Demographic variables and support variable. The demographic variables were measured using single items. Participants responded to a single item "How old are you?" to determine their *age*. Participants were asked "Do you currently have a main partner?" to determine their *partner status*. To determine *relationship length*, participants responded to a single item, "How long have you and your main partner been together?" Participants' *level of education* was obtained by responses to the item "What is your highest level of education?"

The *support* measure assessed participants' perceptions of support during the sessions from the facilitators/leaders and group members. An eight-item scale was used in which four items asked about their perceptions of support from the group facilitator and four items asked about perceptions of support from group members. An example of an item is "During the SISTA group sessions, the other group members made me feel like an important part of the group." Participants responded on a 6-point Likert-type scale ranging from "Never" to "All the time." Participants reported high perceived support overall, with 70% of the participants giving the highest rating to all eight items. This scale had high reliability with the sample ($\alpha = .91$).

Dependent variables. Several measures were used to assess condom behaviors, attitudes, and efficacy. *Condom use consistency* was determined by asking participants to report the number of times they had engaged in sex in the past 3 months. Participants were then asked the number of times they used a condom in the past 3 months. A ratio was computed to determine the frequency of condom use. Participants with 100% frequency of condom use were considered consistent condom users; participants with less than 100% condom use were considered inconsistent condom users. At posttest, 60% of the participants were categorized as consistent condom users.

Condom attitudes were measured by a seven-item scale that assessed women's attitudes toward condoms as well as their perceptions of their partner's attitudes toward condoms. An example item is, "Sex with condoms does not feel natural." Participants responded on a 4-point Likert-type scale, with lower scores indicating more favorable attitudes toward condoms. At posttest, participants reported favorable attitudes toward condoms, with an average score of 1.59. In the current sample, the Cronbach reliability coefficient was .75.

Condom negotiation efficacy was measured with a seven-item scale designed to assess women's efficacy for negotiating condom use with a primary partner. A sample item was "Can you insist on condom use if your main partner does not want to use one." Participants reported high condom negotiation at posttest with a mean score of 3.58, on a scale of 1 to 4 with higher scores indicating higher condom negotiation efficacy. The scale had a Cronbach reliability coefficient of .85 in the current sample.

The condom use efficacy scale assessed participants' efficacy for properly using the male condom. A sample item includes "How confident are you that you could put a condom on a hard penis?" Response options ranged from 1 (*not confident*) to 3 (*very confident*). Participants reported an average score of 2.75 at posttest. The Cronbach reliability coefficient for the condom use efficacy scale was .92 with the study sample.

Drug attitudes and use. Drug attitudes were assessed by two subscales that assessed *perception of drug harmfulness* and *drug disapproval*. Participants responded to four items that asked how much a person risked harming themselves by engaging in alcohol, marijuana, and tobacco use. An example item is, "How much do people risk harming themselves when they smoke marijuana once a month?" In the current sample, the Cronbach reliability coefficient was .74. Participants also reported their approval/disapproval of drug use on a four-item subscale. An example item is, "How do you feel about adults smoking one or more packs of cigarettes per day?" The Cronbach reliability coefficient was .71.

Participants reported their *30-day alcohol and marijuana use* by indicating the frequency of their use during the past 30 days. Response options ranged from "0 days" to "all 30 days." Responses were dichotomized into participants who indicated marijuana use or alcohol use and those who did not. At posttest, 44% of the participants reported alcohol use and 16% of the participants reported marijuana use.

Procedure

The study was reviewed and approved by the Institution's Review Board. Participants were recruited for participation via flyers at universities, churches, clinics, and community centers. The flyers invited African American women to participate in a discussion group on healthy relationships. On receipt of informed consent, participants completed pencil-and-paper measures at pretest, and later at posttest. Participants attended three to five 2-hour sessions held weekly. The majority of the participants attended all five sessions. Participants were provided with a $10 gift card at each session they attended. Seventy-seven percent of the participants were recruited from universities; 23% were recruited from community organizations.

Curriculum Implementation Procedures

Peer facilitators were African American women who were hired and trained to serve as group leaders. They attended a 3-day training, which included experiential activities related to (1) curriculum content, (2) facilitation strategies that foster a supportive environment, (3) information about HIV/AIDS and drugs, and (4) confidentiality. Trainees had to successfully complete a "mock facilitation" to serve as peer facilitators. Approximately 40 peer health educators were trained to implement the curriculum over the course of the 4-year project.

Two peer facilitators were assigned to each group of 8 to 14 women. Five sessions were implemented for 2 hours per week over 5 weeks. A member of the evaluation staff (a PhD-level psychologist and/or an advanced graduate student in psychology) observed each group at least twice to monitor fidelity to the curriculum and to provide peer facilitators with feedback about their implementation.

Data Analysis Strategy

In order to test the study's hypotheses, multiple regression and binary logistic regression analyses were computed. Preliminary analyses were conducted to examine descriptive statistics and ensure that support did not covary with session attendance. An analysis of variance was computed to determine if individuals with higher attendance reported higher perceived support. Number of sessions attended ranged from 3 to 5. Women who attended more sessions did not have significantly higher perceived support scores, $F(2, 308) = .14$, $p > .05$.

Additional preliminary analyses were conducted to screen data for outliers and violations of the assumptions of multiple regression including linearity, normality, and homogeneity of variance. Log transformations were computed for variables violating the assumption of normality. In order to control for the effect of pretest scores, age, partner status, relationship length, and education, these variables were entered in the first step. Perception of support was entered in the second step. Logistic regression analyses were computed for dichotomous outcome variables (i.e., condom use and alcohol and marijuana use).

Results

Preliminary Analyses

Descriptive analyses revealed scores above the midpoint for all scales at posttest. For all scales, these scores changed in the expected direction from pre- to posttest (see Table 1). Several significant bivariate correlations were found across the study variables (see Table 2).

Condom-Related Outcomes

Hypothesis 1 predicted that higher perceived support would be associated with higher condom use efficacy, condom negotiation efficacy, more positive attitudes toward condoms, and greater condom use at posttest after accounting for the effects of pretest condom scores, age, education, partner status, and relationship length. Results indicated that higher perceived support predicted higher condom negotiation efficacy, $\beta = .10$, $t(247) = 2.01$, $p < .05$, and higher condom use efficacy, $\beta = .19$, $t(275) = 3.57$, $p < .05$. For these variables, perceptions of support demonstrated a small effect on posttest scores accounting for an additional 1% of the variance in condom negotiation efficacy, $F(1, 247) = 4.03$, $p < .05$, and 4% of the variance in condom use efficacy, $F(1, 275) = 12.74$, $p < .01$, after controlling for pretest scores and demographic and partner variables. The control variables (i.e., pretest scores, age, education, partner statuses, relationship length) accounted for 37% of the variance in condom negotiation efficacy and 15% of the variance in condom use efficacy. However, support did not predict condom attitudes, $\beta = -.01$, $t(177) = -.13$, $p > .05$.

Logistic regression analyses indicated that for participants who were sexually active, perceived support predicted consistent condom use, exp(B) = 2.73, $p < .05$. Participants who reported higher perceived group support were four times (Wald = 4.09) more likely to be consistent condom users than nonconsistent condom users.

Drug-Related Outcomes

Hypothesis 2 predicted that higher perceived support would be associated with higher drug disapproval, higher perceptions of drug harm, and lower marijuana and alcohol use at posttest while controlling for pretest drug scores and other demographic variables. Higher perceived support predicted higher perception of drug harmfulness, $\beta = .10$, $t(288) = 1.99$, $p < .05$, and

Table 1. Participants' Scores at Pretest and Posttest

Scale	Pretest	*SD*	Posttest	*SD*	*d*	Range
1. Support			5.74	.60		1-6
2. Condom attitudes	1.73	.54	1.59	.46	.14	1-4
3. Condom negotiation efficacy	3.45	.52	3.58	.53	.13	1-4
4. Condom use efficacy	2.26	.55	2.75	.40	.49	1-3
5. Perception of drug harm	3.45	.59	3.52	.54	.07	1-4
6. Drug disapproval	2.34	.54	2.47	.53	.13	1-3
Consistent condom use	45%		60%		15%	
Alcohol use	56%		49%		7%	
Marijuana use	16%		16%		0%	

Note: Lower scores indicate more positive attitudes toward condoms.

Table 2. Posttest Correlations Between Independent and Dependent Variables

	1	2	3	4	5	6
1. Support						
2. Condom attitudes	–.09	—				
3. Condom negotiation	.21**	–.43**	—			
4. Condom use efficacy	.20**	–.16*	.35**	—		
5. Perception of drug harm	.34**	–.11	.10	.06	—	
6. Drug disapproval	.16**	–.14*	.06	–.04	.33**	—

*$p < .05$. **$p < .01$.

drug disapproval, $\beta = .15$, $t(276) = 2.68$, $p < .01$, at posttest. Perceived support demonstrated a small effect on drug attitudes accounting for 2% of the variance in perception of drug harmfulness, $F(1, 276) = 7.20$, $p < .05$, and 1% of the variance in drug disapproval, $F(1, 276) = 7.20$, $p < .05$, after accounting for pretest scores, age, education, relationship length, and relationship status. The control variables accounted for 31% of the variance in drug harmfulness and 19% of the variance in drug disapproval. However, logistic regression analyses indicated that perceived support did not predict posttest scores for alcohol use, exp(B) = .98, $p > .05$, or marijuana use, exp(B) = 2.09, $p > .05$.

Summary of Findings

The results indicate that perception of group and facilitator support during the intervention had modest, positive effects on condom negotiation, condom use efficacy, condom use consistency, drug harmfulness, and drug disapproval after controlling for pretest scores and demographic variables.

Discussion

The purpose of this study was to evaluate if perceived support from intervention group members and peer facilitators contributed to HIV protective behaviors among African American women in an HIV prevention intervention. The intent was to determine if the impact of perceived group support contributed beyond the effect of the intervention and when other demographic variables were considered. The findings showed modest and significant gains in intervention effectiveness with regard to condom outcomes and some drug outcomes. Specifically, perceived support explained additional variance in condom negotiation efficacy and condom use efficacy at posttest when pretest condom use efficacy and condom negotiation efficacy were controlled for along with demographic variables such as age, education, partner status, and relationship length. Additionally, perceived support from group members explained more consistent condom use at posttest after pretest condom use, and demographic variables were controlled for.

Similar to condom outcomes, the perception of support from group members accounted for additional variance in explaining drug attitudes at posttest. Specifically, group support predicted additional variance in accounting for perception of drug harmfulness and drug disapproval at posttest when pretest drug measures and demographic variables were controlled for. However, perceived support from group members did not contribute to additional variance in posttest scores for alcohol use or marijuana use after controlling for pretest scores on alcohol and drug use and demographic variables.

Although it was not the primary goal of this study to show intervention effects, it is noteworthy that participants showed significant improvements from pretest to posttest on condom and drug outcome variables. Pretest scores along with demographic variables were considered control variables in this study and explained moderate amounts of variance in condom outcomes (i.e., 37% of the variance in condom negotiation efficacy and 15% of the variance in condom use efficacy). Similarly, these control variables accounted for 31% of the variance in perception of drug harmfulness and 19% of the variance in drug disapproval.

Overall, participants reported fairly high levels of perceived support from both group members and group leaders. This supports one of the aims of the SISTA curriculum, which is to provide a context in which members support each other in the learning of skills in HIV protective behaviors. Modeling from peer facilitators and the similarity of group participants to peer facilitators and to each other may have contributed to this perception. Also, our recruitment strategy resulted in groups comprising of women who were similar. For example, most groups were comprised of women who were recruited from the same university and/or community agency (e.g., church or community health organization). This method of recruitment probably led to similarity among women not only with regard to gender but also with regard to age and life circumstances.

The study findings have implications for how HIV prevention interventions can be strengthened for African American women. Group-level interventions that are designed to encourage African American women to be supportive of each other may have higher levels of effectiveness than those interventions that do not encourage such support. Interventions that promote high levels of support among group members and/or peer facilitators might include discussion and activities on how group members can provide support to each other. These could involve women learning techniques, such as (1) active listening, (2) how to provide positive affirmations, (3) how to provide constructive criticism, and (4) how to let others know that they are appreciated and respected. Sessions might also incorporate information to participants on how to access and gain support from others, such as (1) appropriate levels of disclosure, (2) how to ask for help, and (3) how to take constructive feedback. The findings of this study suggest that these types of strategies might contribute to intervention effectiveness over and beyond that of a curriculum that is already proven effective.

The study findings highlight the significance of understanding the process by which curriculum content is implemented. When the implementation process leads to women feeling supported, better HIV protection and risk reduction are expected to occur. Process activities to attend to include (1) activities that promote interdependence among women, (2) a format or structure used whereby women learn from each other, (3) having groups comprised of women who are similar to each other, (4) an environment in which women feel safe in their discussions and disclosures, and (5) selecting and training facilitators who have the skills or can learn the skills to facilitate an environment of support. The relational and Africentric orientation of many African American women may augment the effectiveness of group support as a component in HIV prevention interventions.

Given the relatively modest contribution of perceived support, there may be other factors that contribute to the perception of support from group members and leaders with respect to HIV protective outcomes. For example, would support be more important for women who are high versus low in ethnic identity and among those who may have higher relational needs and Africentric orientations? Would support be especially useful for those who have limited social networks? Other variables such as group size and group composition along with length of sessions may also affect perceived support and are topics for future investigations.

There are some limitations that should be noted. The first concern the generality of the study findings. The sample consisted of women who volunteered for a group-level intervention. Perhaps, support is more important to women who volunteer for a group-level intervention. Women who volunteer to participate in a more individually focused intervention and/or a less interactive intervention might not benefit as much from this type of intervention. Also, the majority of the sample was college students and these women do not represent the full range of women at risk for HIV. Social desirability biases may also have affected participants' responses to items and their ratings of the facilitator and other group members. Although participants were told that their responses would be anonymous and were seated such that they could not see each other's responses, social desirability is always a possibility when collecting sensitive information. Certain measures could be improved by increasing their specificity. For example, on the drug use variable participants reported their alcohol consumption in the past 30 days but did not specify the number or type of drinks consumed. Additionally, participants reported their age rather than birth date, which may increase the likelihood that participants provided false answers. Finally, the group support measure used in this study may not have captured all the aspects of support. The measure captured perceptions of mostly emotional or affective support and not material or instrumental support, which may also be needed. Greater specificity on these variables may have improved findings for the effectiveness of the intervention.

In conclusion, effective HIV prevention efforts continue to be a major priority for African Americans. The findings from this study suggest that group support is an important component of an effective HIV prevention program for African American women and should be attended to in future HIV prevention programming and research.

Acknowledgments

We would like to acknowledge Vivian Lucas, project director, and Deirdre Johnson, peer facilitator, for their role in this study. Appreciation is extended to all the women who have participated in our HIV prevention interventions.

Declaration of Conflicting Interests

The authors declared no conflicts of interest with respect to the authorship and/or publication of this article.

Funding

The authors disclosed receipt of the following financial support for the research and/or authorship of this article:

Funding for this study was provided by the Center for Substance Abuse Prevention and the Office on Women's Health.

References

Albarracín, D., Durantini, M. R., & Earl, A. (2006). Empirical and theoretical conclusions of an analysis of outcomes of HIV-prevention interventions. *Current Directions in Psychological Science, 15*, 73-78.

Belgrave, F. Z., & Allison, K. W. (2006). *African American psychology: From Africa to America*. Thousand Oaks, CA: Sage.

Bowleg, L., Belgrave, F. Z., & Reisen, C. A. (2000). Gender roles, power strategies, and precautionary sexual self-efficacy: Implications for black and Latina women's HIV/AIDS protective behaviors. *Sex Roles, 42*, 613-635.

Centers for Disease Control and Prevention. (2007). *HIV/AIDS fact sheet 2007. Mother-to-child (perinatal) HIV transmission and prevention*. Atlanta, GA: Author.

Centers for Disease Control and Prevention. (2008). *HIV/AIDS fact sheet 2008. HIV/AIDS among women*. Atlanta, GA: Author.

Center on AIDS and Community Research. (2008). *Diffusion of effective behavioral interventions*. Retrieved October 1, 2008, from http://effectiveinterventions.org/

Corneille, M. A., Zyzniewski, L. E., & Belgrave, F. Z. (2008). Age and HIV risk and protective behaviors among African American women. *Journal of Black Psychology, 34*, 217-233.

Crosby, R. A., DiClemente, R. J, Wingood, G. M., Sionean, C., Cobb, B. K., & Harrington, K. (2000). Correlates of unprotected vaginal sex among African American female adolescents: Importance of relationship dynamics. *Archives of Pediatrics and Adolescent Psychiatry, 154*, 893-899.

DiClemente, R. J., & Wingood, G. M. (1995). A randomized controlled trial of an HIV sexual risk-reduction intervention for young African-American women. *Journal of the American Medical Association, 274*, 1271-1276.

Grills, C. (2004). African psychology. In R. Jones (Ed.), *African psychology* (pp. 171-208) . Hampton, VA: Cobb & Henry.

Helgeson, V. S., Cohen, S., Schulz, R., & Yasko, J. (2000). Group support interventions for women with breast cancer: Who benefits from what? *Health Psychology, 19*, 107-114.

Hyde, J., Appleby, P. R., Weiss, G., Bailey, J., & Morgan, X. (2005). Group-level interventions for persons living with HIV: A catalyst for individual change. *AIDS Education and Prevention, 17*, 53-65.

Jordan, J., Kaplan, A., Miller, J.B., Stiver, I., & Surrey, J. (1991). *Women's growth in connection: Writings from the Stone Center*. New York: Guilford.

Klaw, E., & Humphreys, K. (2004). The role of peer-led mutual help groups in promoting health and well-being. In J. L. DeLucia-Waack, D. A. Gerrity, C. R. Calodner, & M. T. Riva (Eds.), *Handbook of group counseling and psychotherapy* (pp. 630-640). Thousand Oaks, CA: Sage.

Lee, S. D., Arozullah, A. M., & Cho, Y. I. (2004). Health literacy, social support, and health: A research agenda. *Social Science & Medicine, 58*, 1309-1321.

Mancoske, R. J., Rountree, M. A., Donovan, M. E., & Neighbors, I. (2006). HIV/AIDS knowledge and perceptions among African American male and female college students at a historical black university. *Journal of HIV/AIDS & Social Services, 5*, 221-232.

Miller, J. (1991). The development of women's sense of self. In J. Jordan, A. Kaplan, J. Miller, I. Stiver, & J. Surrey (Eds.), *Women's growth in connection: Writings from the Stone Center* (pp. 11-26). New York: Guilford.

Newman, M. D. (2004). *Women and HIV*. Retrieved November 17, 2009, from http://hivinsite.ucsf.edu/InSite.jsp?page=kb-03-01-12

Nobles, W. W. (2004). African philosophy: Foundations for Black psychology. In R. Jones (Ed.), *Black psychology* (pp. 57-72). Berkeley, CA: Cobbs & Henry.

Rotheram-Borus, M. J., Lee, M. B., Murphy, D. A., Futterman, D., Duan, N., & Birnbaum, J. M. (2001). Efficacy of a preventive intervention for youth living with HIV. *American Journal of Public Health, 91*, 400-405.

Springer, J. F., Sale, E., Kasim, R., Winter, W., Sambrano, S., & Chipungu, S. (2004). Effectiveness of culturally specific approaches to substance abuse prevention: Findings from CSAP's national cross-site evaluation of high risk youth programs. *Journal of Ethnic & Cultural Diversity in Social Work, 13*, 1-23.

St. Lawrence, J. S., Eldridge, G. D., Reitman, D., Little, C. E., Shelby, M. C., & Brasfield, T. L. (1998). Factors influencing condom use among African American women: Implications for risk reduction interventions. *American Journal of Community Psychology, 26*, 7-28.

U.S. Census Bureau. (2007, January 12). *2007 Population Estimates*. Retrieved October 5, 2008, from http://factfinder.census.gov/home/saff/main.html?_lang=en

Wingood, G. M., & DiClemente, R. J. (2000). Application of the theory of gender and power to examine HIV-related exposures, risk factors, and effective interventions for women. *Health Education & Behavior, 27*, 539-565.

Wingood, G. M., & DiClemente, R. J. (2006). Enhancing adoption of evidence-based HIV interventions: Promotion of a suite of HIV prevention interventions for African American women. *AIDS Education and Prevention, 18*, 161-170.