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The Efficacy of an Integrated Risk Reduction Intervention for HIV-Positive Women With Child Sexual Abuse Histories

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Child sexual abuse (CSA) is associated with HIV risk behaviors [Bensley, L., Van Eenwyk, J., and Simmons, K. W., 2003.] and more prevalent among women living with HIV than in the general population [Koenig, L. J., and Clark, H., 2004]. This randomized Phase I clinical trial tested the impact of a culturally congruent psychoeducational intervention designed to reduce sexual risks and increase HIV medication adherence for HIV-positive women with CSA histories. An ethnically diverse sample of 147 women were randomized to two conditions: an 11-session Enhanced Sexual Health Intervention (ESHI) or an attention control. Results based on "intent to treat" analyses of pre–post changes are reported here. Additional analyses explored whether the observed effects might depend on "intervention dose," i.e., number of sessions attended. Women in the ESHI condition reported greater sexual risk reduction than women in the control condition. Although there were no differences between women in the ESHI and control groups on medication adherence, women in the ESHI condition who attended 8 or more sessions reported greater medication adherence at posttest than control women. The findings provide initial support for this culturally and gender-congruent psychoeducational intervention for HIV-positive women with CSA, and highlight the importance of addressing the effects of CSA on sexual risk reduction and medication adherence in preventive interventions for women.

KEY WORDS: HIV/AIDS; child sexual abuse; intervention; sexual risk reduction; medication adherence; multiethnic samples.

INTRODUCTION

In the past two decades, HIV infection among women has risen at an alarming rate (Center for Disease Control [CDC], 2004). In 2000, women accounted for 25% of AIDS cases reported and 31% of new infections. African American and Latina women affected disproportionately account for 75% of female cases. These increasing rates of heterosexual transmission require that HIV prevention efforts focus on personal and interpersonal factors that place women, especially women of color, at significant disadvantage.

One factor associated with increased HIV risk is child sexual abuse (CSA; Koenig and Clark, 2004). Estimates of CSA prevalence are ~33% among females under the age of 18 (Wyatt *et al.*, 2002a).

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Unlike HIV/AIDS rates, there appears to be no difference in CSA prevalence between African Americans and European Americans (Wyatt *et al.*, 1999a). However, studies investigating the association of HIV and CSA have found a higher proportion of CSA among HIV-positive women than in the general population (Koenig and Clark, 2004).

The link between CSA and HIV can be understood when the relationship between CSA and HIV risk behaviors is examined. Women with CSA histories are significantly more likely to engage in risky sexual behaviors, including unprotected sex (Bensley *et al.*, 2000; Wingood and DiClemente, 1997). Possible sequelae of CSA, psychological disturbances including dissociation (Briere *et al.*, 1992; Zurbriggen and Freyd, 2004), traumatic stress disorder (Briere, 1992), depression and anxiety (Boudewyn and Liem, 1995), also contribute to enhanced risk for STIs and HIV. Women who were sexually abused as children are also more likely to be sexually revictimized as adults (Tjaden and Thoennes, 2000; Wyatt *et al.*, 1992).

Histories of CSA may also affect HIV-positive women's ability to adhere to their medication regimen. Research suggests that successful adherence to HIV therapies is contingent on healthy communication between patients and their doctors (Roberts, 2002). Unfortunately, to our knowledge, no studies have specifically examined the relationship between CSA and HIV medication adherence.

The Role of CSA in HIV Interventions

That CSA can lead to a multitude of impairments, including psychological distress, raises the question of whether the efficacy of interventions for HIV-positive women is hindered if they do not simultaneously address these deficits. One in every two HIV-positive women has a CSA history (Wyatt *et al.*, 2002b), but no HIV interventions to date have addressed the relationship of CSA to current sexual behaviors. Further, few interventions have focused on the amelioration of symptoms that can represent barriers to risk reduction. Interventions for women have typically included community-wide samples of both HIV-positive and -negative women and have focused on cognitive–behavioral risk reduction (DiClemente and Wingwood, 1995; Ehrhardt *et al.*, 2002; Kalichman *et al.*, 1996; Kelly *et al.*, 1994). While these interventions generally report improvements in communication, assertiveness, and intention to change behavior, findings are inconsistent for condom use (Deren *et al.*, 1995; Lauby *et al.*, 2000). Some studies have reported maintenance of or increases in condom use (DiClemente and Wingwood, 1995; Ehrhardt *et al.*, 2002; Kalichman *et al.*, 1996), but the samples were not exclusively HIV-positive.

Most interventions for HIV-positive individuals have been primarily designed for men (Darrow, 1996; Weinhardt *et al.*, 1999) or included both men and women. In addition, in at least one study, improvements in condom use became evident over a year, but not immediately following the intervention (Kalichman *et al.*, 2001). However, because these interventions did not address gender roles, differences in power between men and women, and issues of class, ethnicity, and culture, their efficacy with women of color, who represent a majority of those infected, is unknown (Amaro, 1995; Chin *et al.*, 2004; Weeks *et al.*, 1995; Wingood and DiClemente, 1996).

Therefore, the purpose of this randomized clinical trial was to test the efficacy of a gender-specific, culturally congruent "Enhanced Sexual Health Intervention (ESHI)" that was designed to reduce sexual risks and increase HIV medication adherence in HIV-positive women with histories of childhood sexual abuse. Special attention was given to addressing issues of specific interest and utility to urban, inner-city African American and Latina women, as well as presenting the material in ways that would maximize the utility of the intervention for women at highest risk (Amaro, 1995; Wingood and DiClemente, 1996). The primary outcome targeted by the intervention was sexual risk reduction. It was hypothesized that women randomized to the ESHI condition would evidence significant reductions in sexual risk behavior compared to attention controls. The secondary outcome was HIV treatment adherence, with women randomized to the ESHI condition expected to be significantly more likely to improve or maintain adherence to their medication regimens than attention controls. Women who attended more intervention sessions were also expected to report greater improvements on the primary and secondary outcomes than women in the attention control condition.

METHOD

Study Design

The study included an ethnically diverse sample of African American, European American,

English-speaking Latina, and monolingual Spanish-speaking Latina, HIV-positive women with histories of CSA. Following the baseline assessment, all women were randomly assigned to either ESHI or to attention control in a two-group, repeated measures, time-lagged design. Similar to case management approaches, participants in both conditions received weekly calls for 11 weeks. The attention control condition was designed to closely approximate existing services for HIV positive women who report CSA histories (Chin *et al.*, 2004). Given the potential psychological sequelae of CSA and similar to other studies (Carey *et al.*, 1997), women in the attention control condition were wait-listed for the intervention. The attention control condition began with a one-time group meeting where women received HIV prevention and CSA information and pamphlets. Then, they were posttested at the end of the 11-week intervention, and offered the opportunity to participate in the ESHI condition. Women assigned to the ESHI condition attended 11 weekly sessions for 2.5 hr/week. The meetings were psychoeducational in content, addressing issues related to CSA and HIV status. The participants were posttested at the end of the 11-week intervention, and reinterviewed at 3 and 6 months.

Description of the Intervention

The ESHI is guided by cognitive–behavioral approaches to risk reduction along with cultural- and gender-specific concepts such as collectivism and interconnectedness (Wyatt *et al.*, 1998). The intervention addressed HIV risk behaviors, interpersonal and health behaviors, and psychological symptoms. The focus was on the sexual histories of participants and their link to current cognitive, affective, and behavioral patterns. Throughout the sessions, the impact of CSA on personal decision-making was emphasized as an important link between past traumatic experiences, HIV infection, and current functioning. Specific techniques used include trauma writing (Pennebaker, 1997), problem-solving strategies, and communication skills training. The intervention also included essential components of CSA treatment, including short-term trauma-focused groups, relaxation; training, and peer modeling of disclosure (Cole and Barney, 1987 Gold-Steinberg and Buttenheim, 1993; Roth and Newman, 1995). The goals of the ESHI CSA component were consistent with key aspects of CSA treatment, including tension reduction, normalization of CSA sequelae, and affect regulation (Briere, 2004). Because CSA may diminish self-worth and interest in self-preservation, treatment of cognitive distortions and affective dysregulation can limit successful risk reduction (Briere, 2004). Aspects of the Treatment Engagement model (Longshore *et al.*, 1999), including cultural values as motivators for behavior change, were utilized as well. This intervention integrated well-established components of sexual abuse treatment with successful elements of HIV interventions in both content and format. A detailed description of the intervention curriculum is provided in Chin *et al.* (2004). Groups were conducted by a trained group facilitator in collaboration with a peer mentor, who was an HIV positive woman with a history of CSA, and in the primary language of the group (i.e., English or Spanish). Peer mentors matched the predominant ethnic and cultural characteristics of participants (Chin *et al.*, 2004).

Sample

To obtain a diverse sample of women, participants were recruited from county and community-based clinics, county hospitals, ethnic- and AIDS-specific organizations, and drug rehabilitation centers in Los Angeles. A total of 398 potential participants were screened according to the following eligibility criteria: they were born female; were 18 years of age or older, HIV-positive, and sexually active in the past year; had a history of CSA; and self-identified as African American, Latina, or European American. HIV serostatus was confirmed by enzyme linked immunoabsorbent assay (ELISA) and confirmed by Western Blot. A serology battery assessed immune function as indexed by CD4 and CD8 count and CD4/CD8 ratio. To assess CSA histories, women were screened on nine questions that included sexual experiences against their will before the age of 18 with an adult or someone at least 5 years older. These nine questions assessed CSA including fondling, frottage, attempted or completed vaginal or anal intercourse, oral copulation to either victim or perpetrator, and digital penetration of victim or perpetrator. A total of 162 women met the eligibility criteria. Of those, 147 women were interviewed at baseline and randomized to either the attention control or ESHI group. Of these, 13% ($n = 12$) were lost to follow-up and 2% ($n = 3$) died.

Baseline data were collected from 79 African American, 9 European American, and 59 Latinas (primarily from Mexico, El Salvador, and Central America). Thirty-five Latinas (59%) completed their baseline interviews in Spanish and were assigned to intervention or control groups conducted in Spanish. Following the baseline interviews, 80 women were randomly assigned to the attention control condition and 67 women to the ESHI condition. Seventy-eight of the 80 attention control women (97.5%) and 54 of the 67 ESHI women (80.6%) completed posttests. Women were 39 years of age on average, high-school educated, primarily unemployed, dating or with a main partner, mothers of children, and living with at least two other people. On average, the women had been living with HIV for 7 years, and 13% had been diagnosed with AIDS. There were no significant ethnic or language group differences on demographic characteristics. See Table I for demographic characteristics of women included in the analytic sample. Consistent with declining rates among European American women in Los Angeles County, the number of European American women in the sample is very small, therefore, they were omitted from the analyses.

Procedure

A trained, ethnically and linguistically matched female conducted private, face-to-face interviews with each participant at a location of their choice and in their primary language. To facilitate participation, refreshments, transportation, and child-care were provided. As noted previously, both arms of the intervention were conducted in the primary language of the participants (i.e., all of the monolingual Spanish-speaking women were assigned to Spanish language groups).

Table I. Demographic Characteristics and Covariates

Demographic characteristics	
Age: mean (*SD*), range	41 (8.2), 25–65
Ethnicity: number (%)	
African American	41 (51)
Latina	40 (49)
Education: number (%)	
No high school diploma	36 (44)
High school and above	45 (56)
Work status: number (%)	
Not working outside the home	75 (93)
Working full or part time	6 (7)
Number of children: mean (*SD*), range	2.7 (1.9), 0–8
Number in household: mean (*SD*), range	2.2 (1.8), 0–8
Relationship status: number (%)	
Married or living with partner	31 (38)
Dating	26 (32)
No steady relationship	24 (30)
Covariates	
Health protection norms: mean (*SD*), range	38.4 (3.4), 21–40
Masturbation: number (%)	
No	51 (63)
Yes	30 (37)
Low	19 (23)
Social desirability: mean (*SD*), range	15.4 (2.8), 10–20

Measures

Outcome Measures

Sexual risk reduction and medication adherence were the two outcome variables of interest. Female-centered approaches were utilized to assess sexual risk reduction behaviors. Although women had histories of sexual activity in the past year, research confirms that HIV-positive women are often sexually abstinent due to lack of partner or other health considerations (Campbell *et al.*, 2004; Wyatt *et al.*, 1999b). However, minimizing HIV-positive women's sexual risks is critical if sexual activity resumes. Therefore, women who were sexually active at posttest after having been abstinent at baseline were included in the analyses.

Analyses for sexual risk reduction were based on women who reported having had sex with a main partner during follow-up ($n = 73$). Focus was given to sex with the main partner because very few women ($n = 9$) reported having had sex other than with their main partner. A score of 1 was assigned if the women's behavior indicated movement in the direction of sexual risk reduction. Women were asked how many times they had vaginal sex with their main partner and how many times they or their partner had "used a condom from start to finish" during the 3 months prior to baseline and during the 3 months after baseline. The number of times during which condoms were used was divided by number of occasions of vaginal sex to derive a percentage measure of sexual risk reduction during each 3-month period. Women were scored 1 if they reported 100% condom use at baseline and follow-up, if the sexual risk reduction percentage increased from baseline to follow-up, or if the sexual risk reduction percentage at follow-up was greater than zero. Three women who were sexually active at both baseline and follow-up reported no condom use at baseline, and 13 women who were sexually abstinent at baseline reported sexual activity at follow-up. These women received a risk reduction score of 1 if they engaged in any condom use.

The percentage of condom use during vaginal sex at follow-up was 100% for two of the three women who did not use condoms at baseline and 50% for the third. The average percentage of condom use for women who were sexually abstinent at baseline was 97%; all but one of these women reported 100% condom use. Thus, a score of 1 indicated a substantial commitment to risk reduction among these women. All other patterns of condom use or nonuse were scored 0.

To measure medication adherence, women were asked at posttest how many days in the past 2 weeks they had taken their HIV medication "exactly as prescribed (on schedule and the correct dose)." Those reporting adherence ($n = 85$) on all 14 days were scored 1; all others, 0. Women with no current prescription for HIV medication were omitted from the analysis.

Covariates

Seven covariates were employed in the analysis, including two indicators of relationship status, severity of abuse, masturbation, health protection norms, education, and social desirability. Women were categorized into three groups representing their relationship status at baseline: (1) no steady relationship, (2) dating someone, or (3) married or living with someone. Two design variables were used for the analyses: no steady relationship and dating someone. Women married or living with someone were treated as the reference category.

Women's descriptions of CSA were categorized into 11 types and scored as either less severe, specifically fondling and rubbing against the body in a sexual way (1); or more severe, including digital penetration, forced oral and anal sex, and attempted and completed rape (2).

Because masturbation was an alternative to unsafe sex, a variable was created to control for the possible inverse relationship between masturbation and sexual risk-taking during the baseline period. Women who reported engaging in masturbation during the 3-month baseline period were scored 1; those who reported not masturbating, 0.

To assess health protection norms, women were asked to name up to four adults "who are most important to you." Degree of normative support for health protection was assessed with a series of eight items asking "how much does [each adult] want you to" engage in behaviors including safe sex (e.g., "want you to use condoms with primary partner?"), avoidance of physically or emotionally abusive relationships (e.g., "want you to get out of a relationship that included physical force and violence?"), and medication adherence ("want you to take the medication for your HIV infection?"). Response options were (1) not at all, (2) a little, (3) moderate, (4) quite a bit, and (5) a great deal. Responses for all adults were first added and then divided by the number of adults named. Scores could range from 9 to 40, and higher scores indicated stronger health protection norms ($\alpha = .99$).

Women were asked to indicate the highest grade of education they had completed. Those reporting completion of high school were scored 1; those who had not completed high school were scored 0.

A five-item additive scale developed by Hays *et al.* (1989) to capture the "impression management" factor in socially desirable responses was used to measure social desirability. Items included, for example, "I am always courteous even to people who are disagreeable" and "There have been occasions when I took advantage of someone." Response options were strongly agree (1), agree (2), disagree (3), and strongly disagree (4). Scores ranged from 10 to 20, and higher scores indicated a stronger tendency toward socially desirable responding ($\alpha = .69$).

Analysis

The first step in the analysis was to compare unadjusted percentages reporting sexual risk reduction and medication adherence in each group. Multivariate logistic regression was then conducted to control for the possible influence of covariates on each of these outcomes. Finally, the percentages reporting sexual risk reduction and medication adherence were calculated after adjustment for covariates. Analyses followed an "intent to treat" rationale, with all women enrolled and randomized to the intervention condition included in the analyses, whether or not they completed the curriculum and regardless of how many sessions they attended.

Despite the randomization procedure, it was possible that one or more background characteristics of the women might have been confounded with group assignment. In addition, such characteristics might have been related to study attrition or outcomes. A total of 36 characteristics in seven domains were tested. These included demographic characteristics such as age, education,

employment status, number of children, ethnicity, and language; use of coercive or assaultive conflict tactics by self or partner; social network characteristics such as supportiveness, conflict, and health protection norms; sexual factors such as attitudes toward sex and intention to get pregnant; substance use including problem drinking (recall period=past year) and illegal drug use (recall period=lifetime; very few women reported current drug use); severity of childhood abuse experience(s); and social desirability. Characteristics related to group assignment, study attrition, or either outcome were identified in bivariate analyses (cross-tabulations and t-tests) with an inclusive p value ($p \leq .10$).

Health protection norms were higher ($p < .03$) among women randomly assigned to the ESHI condition. No other background characteristics were related to group assignment, and none of the baseline indicators of sexual risk was related to group assignment. Although health protection norms were not related to either outcome, this variable was included in multivariate logistic regression models to improve the precision of the estimated effects of group assignment. Four background characteristics (masturbation at baseline, abuse severity, and two relationship status variables) were related to sexual risk reduction in bivariate analyses. One characteristic (social desirability) was related to medication adherence, and education was related to study attrition. None of these characteristics was related to group assignment. To improve the precision of estimated intervention effects, we included all seven characteristics as covariates in the multivariate models. Because the hypothesized direction of effect was specified a priori (sexual risk reduction and medication adherence will be higher in the intervention group), one-tailed tests of the statistical significance of the coefficient for group assignment were conducted.

RESULTS

Sexual Risk Behavior

The unadjusted percentage of women reporting sexual risk reduction at posttest was higher in the ESHI group (63.6%) than in the attention control group (56.8%). This difference was not statistically significant (see Fig. 1). However, a favorable effect of the ESHI emerged in the multivariate model (adjusted OR = 2.96, $p = .039$, one-tailed; see Table II). As shown in Fig. 1, the ESHI effect was apparent when percentages reporting sexual risk reduction at posttest were adjusted for covariates (74.5% in the ESHI group and 50.4% in the attention control group).

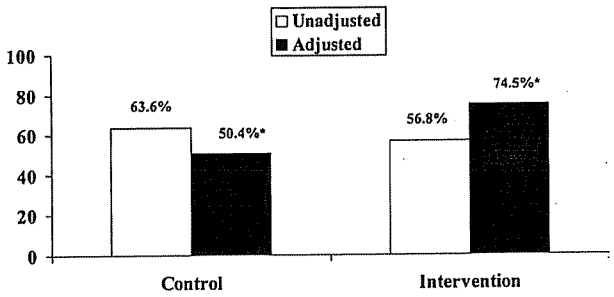

Fig. 1. Women reporting safe sex behavior in control and intervention groups (% yes). *Difference is statistically significant, $p = .039$, one-tailed.

When women assigned to the ESHI were categorized into low attenders (seven or fewer sessions attended) and high attenders (at least eight sessions attended), there was no relationship between number of sessions attended and reports of sexual risk reduction (data not shown).

Two-tailed tests were used for each covariate because the direction of influence was not hypothesized. Ten women who had no steady relationship at baseline but became sexually active during the follow-up were more likely to report sexual risk reduction than women who were married or living with someone. Women with more severe CSA experiences were more likely to report sexual risk reduction, but the reference category (women with less severe CSA) contained only 19 women. Given these small numbers, findings for these covariates are likely to be unreliable.

Medication Adherence

As shown in Fig. 2, unadjusted percentages reporting medication adherence were roughly equal across groups (75.6% of women in the intervention group and 73.3% of controls). In Table II, the multivariate model showed no evidence for an effect of the ESHI on adherence (adjusted OR = 1.13, $p = .41$, one-tailed). Percentages reporting medication adherence in each group remained essentially

Table II. Multivariate Logistic Regression of Sexual Risk Reduction and Medication Adherence on Group (Control Vs. ESHI) and Covariates

	Sexual risk reduction		Medication adherence			
	OR	β	OR	β	OR	β
Group (ESHI = 1)	2.96*	−.11	1.13	.03	—	
Low attenders	—				0.36	−.20
High attenders	—				4.09*	.36
Health protection norms	0.91	−.23	1.05	.09	1.06	.10
Dating	2.90	.29	—		—	
No steady relationship	43.1***	.71	—		—	
Masturbation	0.37	−.26	—		—	
Abuse severity (high)	4.97**	.36	—		—	
Education	0.66	−.11	1.04	.01	1.07	.02
Social desirability	—		1.12	.16	1.12	.17
Analytic *N*	75		80		80	
−2 log likelihood	81.0		88.0		80.0	

*$p < .05$, one-tailed. **$p < .05$, two-tailed. ***$p < .01$, two-tailed.

the same after adjustment for covariates (70.5% in the intervention group and 74.7% in the control group). However, when low attenders (seven or fewer sessions) and high attenders (at least eight sessions) were compared, there was evidence for a favorable effect of the ESHI among high attenders (adjusted OR = 4.09, $p = .044$, one-tailed). Medication adherence was higher among women attending at least eight sessions (91.3%) than it was among women attending seven or fewer sessions (49.7%). In the regression model (see Table II), the difference between women in the control group and high attenders in the ESHI (74.7 and 91.3%, respectively) is statistically significant. No relationship was found between either health protection norms or social desirability and medication adherence in the multivariate model.

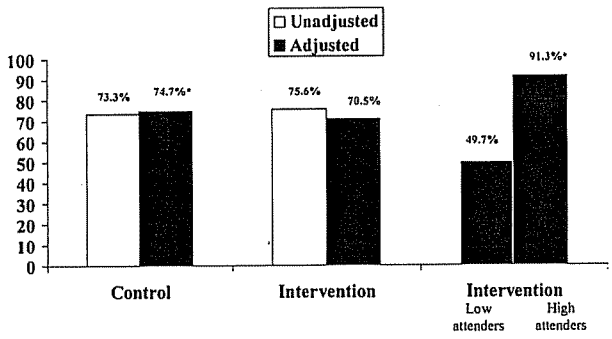

Fig. 2. Women reporting medication adherence in intervention and control groups (% yes). *Difference is statistically significant, $p = .044$, one-tailed.

DISCUSSION

There is growing evidence that HIV-positive women with histories of CSA are at increased risk for HIV risk behaviors and nonadherence to HIV medications (Chin *et al.*, 2004; Koenig and Clark, 2004; Wyatt *et al.*, 2002b). These outcomes increase chances of HIV transmission and poor health maintenance. This was a randomized Stage II clinical trial of a culturally and gender-congruent, psychoeducational intervention on a multiethnic sample of 147 HIV-positive women with histories of childhood sexual abuse. Focus of this initial analysis was to determine whether the active intervention, ESHI, would produce greater reductions in sexual risk behaviors and increase HIV medication compliance compared to an attention control condition.

This is one of the first HIV prevention interventions that addressed the effects of CSA for English- and Spanish-speaking women. We offered skill based strategies to reduce unprotected acts of high risk sexual behavior and increase adherence to HIV medication in a multiethnic, community sample of HIV positive women. The intervention offered cognitive strategies of sexual decision-making while managing symptoms associated with CSA (i.e., dissociation, depression, anxiety, and trauma symptoms) that are hypothesized as possible barriers to effective risk reduction.

The intent to treat analysis for sexual risk reduction revealed that women enrolled in the ESHI were about one and a half times more likely to report sexual risk reduction at posttest than women assigned

to the attention control condition, when appropriate adjustments for covariates were included. Specifically, women randomly assigned to the ESHI condition were more likely to report increased condom use, 100% condom use, or to evidence regular condom use after initiating sexual activity following periods of abstinence. No differences in sexual risk behavior were found as a function of number of ESHI sessions attended. These initial findings are encouraging, as few interventions for HIV-positive women result in immediate behavior change (Kalichman *et al.*, 2001), and suggest that additional work to refine the intervention might strengthen the results. For example, reducing the number of sessions, providing greater focus on skill building for risk reduction, providing more effective management of the psychological sequelae of CSA (e.g., dissociation), and increasing the number of participants and retention rates should provide a better test of the efficacy of this new intervention.

Contrary to expectations, our results indicated that the ESHI was not significantly more effective than the control condition in enhancing medication adherence in this sample. However, results indicated a possible dose–effect relationship, with women who attended at least eight sessions of the intervention significantly more likely to report no medication errors than those who attended seven or fewer sessions. There are several possible interpretations of these findings. Increased medical adherence may reflect self-selection in attendance. Women who were more compliant with attendance may have also been more conscientious about their health and made more attempts to use what they learned, thus experiencing more benefits from the intervention. Competing demands on time and health problems may have contributed to both inconsistent attendance and adherence. On the other hand, with an increased intervention dose, the participants had the opportunity to discuss barriers to adherence and better strategies to overcome these barriers. They also may have been able to practice more effective communication skills with providers about potential side effects and how to minimize them.

These findings indicate that HIV-positive women with histories of sexual abuse can improve their condom negotiation skills to increase or maintain condom use with partners. Women able to maintain involvement with the intervention can also learn to increase their adherence to HIV medication. For some women, adherence to a medication regimen may be a more difficult task than following sexual risk reduction guidelines. If so, the educational and motivational benefits of the intervention might be more evident among women who received a higher dose in the form of more sessions.

This Phase I efficacy trial provides encouraging initial support of the efficacy of this 11-week psychoeducational intervention for this population of women, who are adversely affected by the burdens of stress due to their lower socioeconomic status and ethnicity, as well as being doubly impacted by their history of CSA and HIV/AIDS. Although most HIV interventions use four to five sessions on average (Exner *et al.*, 1997), the cognitive and affective sequelae of CSA may interfere with an individual's ability to benefit from such short traditional HIV messages and treatment programs, thus requiring more than this limited number of sessions. Interventions such as the ESHI that address both the effects of trauma and HIV prevention may be better suited for women who are living with both HIV and CSA histories.

The results also suggest that the intervention can be offered to an ethnically diverse group of women when culture relevant values and gender specific issues that women share are addressed. This is an important finding given that intervention programs offered in health clinics and other HIV organizations may not be easily offered to only one ethnic group. Finding methods to offer HIV risk reduction and adherence strategies to women with histories of abuse in a cost-effective manner may help to facilitate the transfer of evidence-based interventions into the community.

Limitations of the Study

Although these findings are promising, there are several notable limitations in this study. First, the small sample size requires that we consider these results preliminary, and they will need to be replicated on larger and ethnically diverse samples of HIV-positive women with CSA histories. Second, the active intervention was compared with a control group that received the usual information and support offered to HIV-positive patients but limited face-to-face contact. Thus, amount of contact was not effectively controlled, and we cannot discount the possibility that the beneficial results of the intervention may be due, at least in part, to differences in contact. Future studies testing the efficacy of this intervention will need to include equal

numbers of patient contacts. However, the wait list control is an important feature to retain because of ethical considerations for women with mental health, HIV and trauma-related symptoms. Third, self-report adherence measures may overestimate actual levels of adherence. However, the measurement and analytic techniques employed here were shown by Wagner and Ghosh-Dastidar (2002) to be valid for the purpose of comparing HIV medication adherence between groups. Moreover, self-reported days of adherence correlated very highly ($r = -.64$) with detailed review of medication errors during the past 3 days. The former measure, using a 14-day recall period, was preferable because it may have provided a more stable indicator of adherence. Finally, self-report adherence has been found to correlate with virological response and is the most readily applicable adherence assessment in clinical research (Lucas *et al.*, 2002). Nevertheless, objective measures of adherence (e.g., monitoring blood levels, using MEM cap technology, etc.) may still be worth the additional costs in order to ensure more reliable assessments of actual treatment adherence.

In conclusion, limitations notwithstanding, this study indicates that the intervention holds promise for promoting sexual risk reduction and medical adherence (Farrington, 2003). It also highlights the need for health providers to assess a history of CSA in HIV-positive women and to offer more comprehensive services to address their needs. This study provides encouraging initial evidence that this intervention can produce short-term changes in sexual risks and medication adherence in a high-need sample of women with very compromised health and psychological functioning. Future analyses will examine the long-term stability of these changes. These results also suggest that additional work is needed to refine the intervention, and future research will be needed to examine replicability, generalizability, exportability, and other Stage III issues (Rounsaville *et al.*, 2001). Finally, in this study we argue for the need to address the effects of CSA as an understudied factor that might attenuate the efficacy of risk reduction efforts. Similar to concerns about the need to examine additional factors related to men's HIV risk reduction (Stall *et al.*, 2003), a comprehensive approach to HIV-positive women's past and current risks may be the most effective strategy to reduce the spread of HIV and to improve the quality of life of women who are greatest risk for this disease and its sequelae.

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