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Even If You Build It, We May Not Come: Correlates of Non-Attendance at a Sexual Risk Reduction Workshop for STD Clinic Patients

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Abstract

Sexual risk reduction interventions have been shown to reduce sexual risk behavior; however, attendance at these interventions is sometimes disappointingly low. To improve recruitment efforts, we investigated whether patient characteristics were associated with non-attendance at a single-session, sexual risk reduction intervention. Patients from an STD clinic ($N = 990$; 48% female; 64% African American) who were eligible and who agreed to participate in a randomized, clinical trial were invited to a 4-hour, sexual risk reduction workshop. Fifty-six percent of those who were invited attended the workshop. Those who did not attend were more likely to be younger, male, Caucasian, employed, and better paid. Attendance did not differ as a function of sexual behavior or infection status. These findings identify the population sub-groups who are likely to require special effort to attract to a workshop. We encourage more effective marketing and recruitment approaches for sexual risk reduction programs.

Keywords

Sexual Behavior; Health Promotion; Sexually Transmitted Diseases; HIV; Intervention Studies

INTRODUCTION

Forty thousand persons are diagnosed with HIV in the U.S. annually (Centers for Disease Control and Prevention, 2005). Infected persons will experience lessened quality of life and shorter life expectancy even with optimal health care (Schackman et al., 2006). Globally, the incidence of HIV infections is much higher and access to care much lower, resulting in greater morbidity and mortality. Until an effective vaccine is developed, promoting safer sexual behavior remains the best way to prevent HIV transmission (Holtgrave and Curran, 2006).

Fortunately, theory-based sexual risk-reduction interventions have been shown to promote safer sexual behavior (Copenhaver et al., 2006; Crepaz et al., 2006; Johnson et al., 2006; Johnson et al., 2003). Optimizing the public health impact of these interventions, however, requires that persons from many backgrounds attend (cf. Glasgow et al., 1999). Unfortunately, interventionists often have a difficult time encouraging participants to attend behavior change interventions, especially when interventions are lengthy and/or involve multiple sessions.¹

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To improve attendance at risk-reduction programs, it is helpful to know who is less likely to attend. Interventionists (and researchers) can utilize this information to prepare more effective marketing targeted toward reluctant participants. Research suggests that attendance at risk reduction programs is associated with demographic characteristics (such as age and education) and risk behavior (including substance use and sexual risk behavior; DiFranceisco et al., 1998; Roffman et al., 1997; Rutledge et al., 2002). Few studies have explored attendance as a function of gender or sexual orientation and, to our knowledge, no study has investigated predictors of intervention attendance in a diverse sample of patients attending an STD clinic. The latter is surprising given that HIV infection is more likely among those already infected with another STD, such as gonorrhea or chlamydia (Wasserheit, 1992).

The purpose of this study was to investigate whether baseline demographic, substance use, and sexual risk behaviors predicted attendance at a sexual risk-reduction intervention offered to men and women recruited from a public STD clinic.

METHODS

Participants

The sample included 990 patients attending a STD clinic, who were eligible and had agreed to participate in a larger randomized, controlled trial evaluating several risk-reduction interventions. Participants were, on average, 29 years old ($SD = 9.5$ years); 48% were female ($n = 478$) and 64% were African-American ($n = 638$). The majority had a high school education or less (62%; $n = 610$), had an income $< \$15,000$ per year (57%; $n = 564$), and were unemployed (51%; $n = 505$).

Procedures

The procedures were approved by the IRBs of the participating institutions. This research took place at a publicly funded STD clinic in upstate New York. A Research Assistant (RA) called patients (by registration number) from the waiting room into a private room, where they were asked a series of screening questions to determine if they were eligible for a larger study. Eligibility criteria (masked to patients) included: (a) age 18 or older; (b) sexual risk behavior in the past 3 months; (c) not infected with HIV; and (d) willing to take an HIV test. Of the 5614 patients who were screened, 2694 (48%) met study criteria and were invited to participate. Eligible patients were told that they would be asked to complete a survey (that day), and that they might be invited to attend a 4-hour workshop (within the next two weeks) that would provide them with information about how to protect themselves from STDs and HIV. If they completed the survey, they would receive a \$20 stipend; if they attended the workshop, they would receive a \$40 stipend. Of the 2694 who met study criteria, 1562 (58%) agreed to participate and provided written consent. Of these, two-thirds were invited to attend a sexual risk reduction intervention (the other one-third was randomly assigned to a control group), resulting in a total sample for the present study of $N = 990$.²

All consenting participants completed an audio computer-assisted self-interview (ACASI) in a private exam room on the day of their clinic visit. The survey took approximately 45 minutes to complete, and assessed demographic, health, substance use, and sexual history characteristics. After completing the survey, participants received standard medical care,

¹Much of the evidence for poor attendance has been anecdotal because investigators have not reported the percentage of participants who attend. In addition, some investigators randomize participants to intervention conditions only after they arrive for a workshop. These reporting and methodological factors have obscured attendance rates. Fortunately, with the CONSORT reporting requirements [Moher et al., 2001], we will have better data regarding true attendance rates in the future.

²Fifty-five participants who were invited to the workshop without promise of a monetary incentive were considered pilot participants, and were not included in these analyses.

including an intake, a physical exam, STD and HIV testing, and pre- and post-test counseling. Participants were given test results, and were treated for STDs, if indicated. At the end of the clinic visit, participants who had been assigned to a workshop were given a printed invitation with the date, time, and location of the workshop. The RA explained that the workshop would last 4 hours, it would be held in the clinic conference room, and it would include approximately 8–9 other participants (same gender); they were reminded that lunch would be provided, and they would receive a safer sex kit and a \$40 stipend for their time. Participants also were told that previous attendees had enjoyed the workshop and found it helpful. The RA asked participants whether they would be able to attend. If a participant said he or she would not be able to attend the workshop, the RA asked about barriers, and helped problem-solve around those barriers. For example, participants were told that child care and bus tokens would be available, if needed. Participants were told they would receive a reminder call a few days before the workshop.

Several days before the workshop, an RA called participants to remind them about the workshop. Participants who said they would not be able to attend were invited to the next workshop. The morning of the workshop, an RA called participants to confirm. As participants arrived at the workshop, they were asked for their name and date of birth. After verifying that the information was correct, the participant was shown to the room where the workshop was held and introduced to the facilitators.³

Measures

Demographics—Participants were asked to report their sex (male = 1; female = 0), age (in years), race (Minority = 1; Caucasian = 0), education (high school or less = 1; some college = 0), employment (unemployed = 1; employed = 0), and income (<\$15,000 per year = 1; >\$15,000 per year = 0).

Substance Use—The 10-item Alcohol Use Disorders Identification Test (AUDIT; Saunders et al., 1993) assessed alcohol use and related problems. A higher AUDIT score indicated more problems with alcohol (Babor et al., 1992). In addition, four indicators of current alcohol use were obtained: (a) number of days participants had a drink containing alcohol in a typical week; and (b) number of alcoholic drinks participants had on a typical day when drinking. These variables were combined to determine (c) number of alcoholic drinks consumed in an average week. Participants also were asked to report (d) the maximum number of drinks they had in one day in the past 3 months.

The Drug Abuse Screening Test (DAST; Skinner, 1982) assessed drug-related problems in the past year. Participants indicated whether or not they experienced a series of problems related to drug use (e.g., blackouts, family neglect). A higher score indicated more drug use problems.

Six items asked how often in the past 3 months participants used alcohol or drugs before sex (1 = Never; 5 = Almost Always) by partner type (i.e., for their steady partner, their outside female partner(s), and their outside male partner(s)); scores were averaged across partner types. These items have been used in prior research (Carey et al., 1997, 2000, 2004).

Sexual Behavior—Participants reported the number of sexual partners (past 3 months, lifetime), and the number of episodes of protected and unprotected vaginal and anal intercourse in the past 3 months with: (a) a steady partner; (b) a non-steady male partner(s); and (c) a non-steady female partner(s); from these data we derived the total number of episodes of

³Participants who arrived ≥ 30 minutes late were not allowed to attend the workshop that week; in this event, they were invited to the next scheduled workshop. If they failed to attend the original workshop and the make-up workshop, they were classified as non-attendees.

unprotected sex and the proportion of unprotected sex episodes in the past 3 months. Participants were asked whether they considered themselves to be hetero-, homo-, or bi-sexual (or not sure). From clinic records, we determined whether or not participants were diagnosed with chlamydia, gonorrhea, trichomonas, or HIV during their baseline clinic visit (incident STD diagnosis).

Data Management and Analyses

For survey items that yielded non-categorical data, outliers (i.e., responses that were more than three times the interquartile range from the median) were truncated to three times the interquartile range plus one (Tabachnick and Fidell, 2001). Outliers were truncated for: number of partners (past 3 months and lifetime); number of episodes of unprotected sex; number of alcoholic drinks in an average day and in an average week; and maximum number of drinks in one day in the past 3 months. Data that were non-normally distributed (i.e., number of partners in the past 3 months and lifetime, number of episodes of unprotected sex in the past 3 months) were transformed using a $\log_{10}(x + 1)$ transformation. Analyses of Variance (ANOVAs) were conducted on continuous outcome variables, and chi square analyses were conducted on dichotomous outcome variables. For multivariate analyses, sequential logistic regression was used (Tabachnick & Fidell, 2001). Those who were invited but did not attend the workshop (non-attenders) were compared to the reference condition of those who attended the workshop.

RESULTS

More than one-half of invited research participants attended the safer sex workshops (56%; $n = 553$). Those who did not attend were more likely to: be younger, $F(1, 988) = 45.34, p < .001$; be male, $\chi^2(1, N = 990) = 14.76, p < .001$; be Caucasian, $\chi^2(1, N = 990) = 37.61, p < .001$; be currently employed, $\chi^2(1, N = 990) = 40.84, p < .001$; and have an income $> \$15,000$ per year, $\chi^2(1, N = 990) = 24.08, p < .001$ (see Table I). The groups did not differ in education.

Attendees and non-attendees also differed in alcohol use. Non-attendees reported greater alcohol use, including more drinks on days when they had any alcohol, $F(1, 987) = 10.25, p < .01$ and more use of alcohol before sex, $F(1, 988) = 4.83, p < .05$. In addition, non-attendees reported a greater maximum number of drinks in one day during the past 3 months, $F(1, 987) = 19.04, p < .001$. The two groups did not differ on AUDIT scores, the number of days they had a drink in a typical week, the average number of drinks per week, DAST scores, or the cooccurrence of drug use and sex.

Attendees and non-attendees did not differ on any of the other sexual risk behavior variables, including number of sexual partners (lifetime and past 3 months), number of episodes of unprotected sex in the past 3 months, or proportion of episodes of unprotected sex in the past 3 months. The groups also did not differ on self-reported sexual orientation,⁴ or in the likelihood of being diagnosed with an incident STD at baseline.⁵

⁴Results were unchanged when we used a behavioral definition of sexual orientation, that is, those who reported having intercourse with someone of the same gender in the past 3 months were defined as homosexual or bisexual.

⁵Because the sexual behavioral data were skewed, supplementary analyses using non-parametric tests were conducted. Results were largely consistent with results from the ANOVAs, with one exception; in the nonparametric analyses, non-attendees reported a greater number of lifetime partners than did attendees, $\chi^2(1, N = 989) = 5.88, p < .05$. Additionally, we conducted analyses on several dichotomous indicators of sexual risk, including: (a) whether or not a condom was used at last intercourse; (b) whether or not participants engaged in any unprotected intercourse with their steady partner over the past 3 months; (c) whether or not participants engaged in any unprotected intercourse with their non-steady partner(s) over the past 3 months; and (d) whether or not participants had more than one sexual partner in the past 3 months. None of these dichotomous indicators of sexual risk were associated with workshop attendance.

Finally, we conducted a logistic regression analysis, including all demographic and substance use variables that were significant in the univariate analyses (cf. Table II). First, demographic variables that were significant in the univariate analyses (i.e., gender, race, employment, income, age) were entered simultaneously into the regression. Next, the substance use variables that were significant in the univariate analyses (i.e., number of drinks per day on days when they had any alcohol, alcohol use before sex, maximum number of drinks in one day in the past 3 months) were entered into the regression simultaneously. The substance use variables did not add significantly to the prediction of workshop attendance, beyond what was contributed by the block of demographic variables, based on the difference in log-likelihood values between the models, $\chi^2 = 1.28$, $df = 3$, $p = .73$. In the final model, male gender (OR = 1.78), Caucasian race (OR = 2.19), employment (OR = 1.76), and younger age (OR = 0.95) remained associated with workshop non-attendance (all $ps < .001$).⁶

DISCUSSION

This study examined predictors of attendance at a sexual risk reduction workshop among men and women attending a publicly funded STD clinic who were eligible for and agreed to participate in a research project. Strengths of the study included a large and diverse sample, use of ACASI and psychometrically-sound measures to optimize data quality, use of medical charts to obtain STD data, and careful data management and analyses.

Results indicated that 56% of research participants attended the sexual risk reduction intervention. Efforts to encourage attendance were extensive and included both personal and printed invitations, problem-solving to address barriers to attendance, reminder and wake-up calls, a friendly and culturally competent staff, lunch, and a stipend for attending. In addition, sessions were held at the clinic from which participants were recruited; the venue was familiar to participants, was near where many participants lived, and was easily accessible by public transportation. These efforts to promote attendance exceed those available to most community-based and AIDS service organizations. Overall, the net effect of our retention efforts was to optimize attendance relative to interventions occurring outside of a research context.

We also explored participant characteristics associated with non-attendance. Univariate analyses indicated that age, sex, ethnicity, employment, income, and substance use were all associated with intervention non-attendance. However, when multivariate analyses were used to control for other predictors, four factors were associated with attendance.

First, consistent with previous research (DiFranceisco et al., 1998; Roffman et al., 1997; Rutledge et al., 2002), we found that non-attendance was associated with younger age. Younger adults may feel less vulnerable to health problems and, therefore, may not see a need to attend a sexual risk reduction intervention (cf. Pedlow and Carey, 2004). Relative to older adults, younger adults may also take their (good) health for granted, and may be less willing to invest in prevention to preserve their health. However, because younger age is associated with higher rates of sexual risk behavior and STD infection (Jemmott and Jemmott, 2000; Shafii and Burstein, 2004), the lower attendance rates among younger participants is troubling.

Second, non-attendance was associated with Caucasian ethnicity. The better attendance exhibited by African-American participants may reflect increased awareness that HIV has disproportionately affected people of color in the U.S. (Centers for Disease Control and Prevention, 2005). Caucasians, especially heterosexual men, may still believe that they are

⁶Logistic regressions including variables that were marginally significant in the univariate analyses also were conducted (Hosmer & Lemeshow, 2000). Demographic variables were entered into the logistic regression first, followed by sexual behavior variables, and, finally, substance use variables. The sexual behavior and substance use variables did not significantly to the prediction of workshop attendance.

“immune” to HIV and other STDs, and find sexual risk reduction workshops unnecessary or a less important health priority. The relatively high participation rates for African-American participants was encouraging given historical events (e.g., Tuskegee; Thomas and Quinn, 1991) and the subsequent distrust of government healthcare facilities (Bogart and Thorburn, 2005).

Third, employment status contributed unique variance to workshop attendance, beyond the variance it shared with income. Individuals who are unemployed may simply have a more flexible schedule, making it more likely that they could attend an intervention. The constraints of employment, such as the lack of free time or scheduling inflexibility, may be an important factor to consider when developing interventions.

Finally, in contrast to earlier studies (Lauby et al., 1996; Song et al., 2006), we found that men were less likely to attend the intervention. Workshops were held on both Fridays and Saturdays for men, so it is unlikely that the day of the week can explain this finding. Subsequent focus groups with intervention facilitators revealed that facilitators also found it more difficult to engage men during the workshop (Carey, Vanable, & Senn, unpublished work); moreover, the overall paucity of intervention trials with (heterosexual) men suggests that recruiting and engaging men remains a substantial challenge for HIV prevention efforts.

Perhaps the most surprising finding was that that sexual risk behavior and STD diagnosis were not related to intervention attendance. Previous research investigating the relation between sexual risk behavior and intervention attendance has been mixed (e.g., DiFranceisco et al., 1998; Lauby et al., 1996; Rutledge et al., 2002). Because participants were recruited from an STD clinic and screened into the study based on sexual risk behavior, rates of sexual risk behavior were relatively high, and perhaps we encountered a ceiling effect; that is, rates of sexual behaviors may have been so high in both attendees and non-attendees that we were unable to detect an effect of sexual behavior on workshop attendance.

We recognize that other factors not explored in this study may influence attendance at sexual risk reduction programs. These include (but are not limited to) psychosocial stress and mental health complications; transportation difficulties; child care and other family responsibilities; fear of discrimination, embarrassment, or stigma associated with attending the workshops; as well as fatalism, lack of concern about sexual health, or other health priorities. Although no single study can address all of these hypothesized deterrents to participation, future research might begin to elucidate the impact of such factors on attendance patterns. In addition, it is important to recognize that those who were invited to the workshop may have differed from the general population of patients attending an STD clinic for several reasons: (a) the patients in the present study were all eligible to participate, thus, they were age 18 or older, had engaged in sexual risk behavior in the past 3 months, were HIV-negative, and were willing to be tested for HIV; and (b) these patients agreed to participate in a research project, knowing that attendance at a workshop (if assigned to an intervention condition) was an expectation of participating in the research. Therefore, results from the present study may not generalize to all STD clinic patients.

Identifying those who are unlikely to attend an intervention allows practitioners to use more intensive and/or creative methods to encourage attendance. The strategies we used included providing compensation for the cost of attending, child care, and food; making reminder phone calls; ensuring that the intervention sessions were interesting but relatively brief; and employing facilitators who were well-trained and culturally sensitive. These strategies are consistent with those nominated by intervention participants in qualitative research (Pinto and McKay, 2006) but will need to be enhanced to optimize attendance at prevention workshops. For example, Rutledge et al. (2002) recommend letting participants know what to expect, and

what will be expected of them. There are data from the mental health literature suggesting that strategies used to prepare clients for therapy and for their role as patients in therapy (e.g., vicarious therapy pretraining) decrease attrition from mental health therapy (Walitzer et al., 1999). Use of these techniques to increase attendance and decrease intervention attrition in sexual health workshops merits additional research.

Further understanding of who is unlikely to attend an intervention, and research into what strategies work to improve attendance among these individuals is important from both research and public health perspectives. From a research perspective, a large percentage of participants must attend the intervention to accurately evaluate intervention effectiveness and assure its generalizability. From a public health perspective, an intervention needs to reach as many people as possible, to optimize the impact of the intervention (cf. Glasgow et al., 1999, 2006).

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Table 1
Demographic, Substance Use, and Sexual Risk Behavior Characteristics by Intervention Attendance—Univariate Analyses

Demographic Characteristics	Intervention Attendees (<i>n</i> = 553)		Intervention Non-Attendees (<i>n</i> = 437)		χ^2	<i>p</i>
	<i>n</i>	%	<i>n</i>	%		
Sex						
Female	297	62%	181	38%	14.76	<.001
Male	256	50%	256	50%		
Race					37.61	<.001
Minority	461	61%	291	39%		
Caucasian	92	39%	146	61%	3.52	ns
Education					40.84	<.001
High school or less	355	58%	255	42%		
At least some college	198	52%	182	48%		
Employment					24.08	<.001
Unemployed	332	66%	173	34%		
Employed	221	46%	264	54%		
Income						
<\$15,000/year	353	63%	211	37%		
≥\$15,000/year	200	47%	226	53%		
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>F</i>	<i>p</i>
Age (years)	30.8	10.2	26.8	8.0	45.34	<.001
Substance Use						
AUDIT	7.0	8.7	6.8	6.9	0.13	ns
DAST	2.1	2.7	1.7	2.4	3.19	ns
co-occurrence of alcohol use and sex	2.2	1.2	2.4	1.2	4.83	<.05
co-occurrence of drug use and sex	2.0	1.4	1.9	1.3	2.34	ns
No. days drink, typical week	1.7	1.9	1.8	1.8	0.89	ns
No. drinks on typical day when drinking	2.4	2.7	3.0	2.8	10.25	<.01
Avg. no. drinks per week	6.6	10.0	7.8	10.2	3.42	ns
Maximum no. drinks in one day, past 3 months	4.0	4.7	5.4	5.3	19.04	<.001
Sexual Behavior						
No. partners, lifetime	35.5	37.5	30.2	34.0	3.14	ns
No. partners, 3 months	2.8	2.3	2.7	2.1	0.23	ns
No. episodes of unprotected sex, 3 months	16.9	20.8	18.9	22.5	0.37	ns
Proportion episodes of unprotected sex, 3 months	0.70	0.31	0.66	0.33	2.87	ns
	<i>n</i>	%	<i>n</i>	%	χ^2	<i>p</i>
Sexual orientation^d					0.02	ns
Homosexual or Bisexual	52	55%	43	45%		
Heterosexual	480	55%	386	45%		
Incident STD diagnosis					2.40	ns
STD diagnosis	141	60%	93	40%		
No STD diagnosis	412	54%	344	46%		

Note. AUDIT = Alcohol Use Disorders Identification Test; DAST = Drug Abuse Screening Test

^a participants who indicated they did not know their sexual orientation ($n = 30$) were not included in this analysis.

Table II

Predictors of Workshop Non-Attendance—Multivariate Analyses

	Log-likelihood	Odds Ratio	Confidence Interval	<i>p</i>
Demographic Variables	-612.57			<.001
Sex (male)		1.78	1.33–2.37	<.001
Race (Caucasian)		2.18	1.55–3.01	<.001
Employment (employed)		1.76	1.33–2.34	<.001
Income ($\geq$ \$15,000/year)		1.25	0.94–1.67	ns
Age		0.95	0.93–0.96	<.001
Alcohol-Related Variables	-611.93			<.001
Co-occurrence of alcohol use and sex		1.03	0.90–1.18	ns
Number of drinks in average day		1.02	0.95–1.10	ns
Maximum drinks in one day, 3 months		1.00	0.96–1.04	ns