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The Efficacy of a Peer-Assisted Multi-Component Behavioral Intervention among Female Entertainment Workers in China: An Initial Assessment*

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Abstract

Women working in China's entertainment industry are at increased risk of acquiring or transmitting HIV/STIs. Efforts to develop effective risk-reduction interventions for female entertainment workers remain limited. We conducted a randomized controlled trial of a theory-based risk-reduction intervention among female entertainment workers in Shanghai. The intervention condition consisted of small group, peer-assisted sessions integrating information, motivation, and behavioral skills (IMB) training with social influences of behavior change. The control condition was an attention-matched HIV and health education and counseling. At 3-month post-intervention, participants in the intervention condition reported greater reductions in unprotected sex with a stable partner than participants in the control condition. However, participants in the control condition reported greater reductions in unprotected sex with a non-stable partner than participants in the intervention condition. Some aspects of the study design may have diluted the effects of the intervention. Future intervention studies need to pay more attention to social influences of behavior change and the particular challenges of risk-reduction with stable partner(s).

Keywords

HIV behavioral intervention; intervention efficacy; female entertainment worker; unprotected sex; China

Introduction

By 2007, China was home to 700,000 persons living with HIV/AIDS (PLWHA) (State Council, 2008). Of the 50,000 newly infected in 2007, 56.9% were attributable to sexual transmission. Evidence suggests that the AIDS epidemic in China has increasingly affected

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women (Lin, McElmurry, & Christiansen, 2007); the male/female ratio of PLWHA had declined from 9 to 1 in the early 1990s to less than 3 to 1 in 2007 (China Ministry of Health [CMOH] & UNAIDS, 2003; Renwick, 2002; State council, 2008).

Because of their involvement in commercial sex, women working in China's entertainment industry are particularly at risk and may play a critical role in the increasing heterosexual transmission of HIV in China (Ding et al., 2005; Hong & Li, 2008; Li et al., 2010; Yi et al., 2010). However, theory-based risk reduction behavioral interventions for female entertainment workers remain limited. This underscores the need to develop more effective risk-reduction interventions for female entertainment workers. With funding from the US National Institute of Child Health and Human Development, we developed a peer-assisted multi-component behavioral intervention and tested it among establishment-based female entertainment workers (FEWs) in Shanghai. We hypothesized that, given the marginal and highly stigmatized social status of FEWs, information alone was not sufficient for behavior change; FEWs needed to be motivated to take protective measures, equipped with behavioral skills in managing difficult situations and negotiating risk reduction measures, and in an environment supportive of HIV risk reduction. We further argued that an intervention for FEWs would be more effective if delivered in small group sessions assisted by peers and augmented by active peer outreach.

Background

A number of individual-based social cognitive theories have been applied in HIV behavior interventions (Glanz, Rimer, & Lewis, 2002). Multiple social influences beyond individual's control and cognition have also been found to play an important role in behavior change (Edwards, Tindale, Heath, & Posavac, 1990). HIV risk reduction interventions thus need to pay attention to both individual cognitive and social influence processes of behavior change. This study was informed by this need and applied an intervention approach that integrated the Information, Motivation, and Behavioral Skills (IMB) model (Fisher & Fisher, 1992) with multiple social influences of behavior change.

According to the IMB model, HIV-related information, motivation, and behavioral skills are keys to behavior change. The importance of information is obvious. Without knowing what HIV is, how it is transmitted, and how it can be prevented, no one could even think about behavior change. However, there is growing consensus that information is necessary but not sufficient for behavior change (Bandura, 1997; Svenson, Östergren, Merlo, & Råstam, 2002). Perceived risk and associated motivation to prevent HIV are also important (Kalichman, Picciano, & Roffman, 2008; Mustanski, Donenberg, & Emerson, 2006). Further, a well-informed and highly motivated individual needs to possess behavioral skills in order to translate information and motivation into preventive actions (Bandura, 1997; Fisher & Fisher, 2000; Svenson et al., 2002). For sexual behavior, which involves interpersonal relationships, behavioral skills in practicing safe sex in difficult situations are particularly critical and found the most proximal predictors of risk reduction behaviors (Carey, Venable, Senn, Coury-Doniger, & Urban, 2008; Cornman, Schmiede, Bryan, Benziger, & Fisher, 2007; Kalichman et al., 2008).

However, behavior change is not completely up to individuals; various social influences beyond individuals' control also play an important role (Edwards et al., 1990; Latkin & Knowlton, 2000). Four types of social influence are particularly relevant for FEWs. First, research has suggested the importance of gender norms in understanding FEWs' unsafe sex in China (Chapman, Estcourt, & Hua, 2008; Xia & Yang, 2005). Prior research also suggests that women's condom use is significantly influenced by their peer group and network norms about condom (Dedobbeleer, Morissette, & Rojas-Viger, 2005). Second, behavioral support

from peers can reinforce risk-reduction norms and behavior among female sex workers (Basu et al., 2004; Dadian, 2002; Morisky et al., 2002; Weeks et al., 2007). Third, women's lack of relationship power, which results from gender inequalities in labor force participation, power, and behavioral norms (Connell, 1987; Wingood & DiClemente, 2000), can significantly limit women's ability to exercise personal control in sexual relationships, particularly in transactional sex with clients, and increase their risk of unprotected sex (Lin et al., 2007; Renwick, 2002; Tang, Wong, & Lee, 2001; Wang, Li, Song, Ding, & Cathy, 2007). Finally, venue support for HIV/STI prevention can promote and reinforce risk reduction norms and is found to facilitate risk reduction behaviors among female sex workers in both China (Hong & Li, 2008; Weeks et al., 2007) and elsewhere (Kerrigan et al., 2003; Morisky et al., 2002; Morisky, Stein, Chiao, Ksobiech, & Malow, 2006).

Methods

Study Design

The study used a cluster randomized controlled trial with pre- and post-intervention assessment design. The clusters used for random sampling were entertainment establishments; all eligible female entertainment workers (FEWs) from a selected establishment were invited to participate and assigned to the same intervention or control condition. To better control for potential across-condition contamination, the study was conducted in two non-contiguous districts in Shanghai: one (*Xuhui*) was randomly assigned to serve as the intervention site and the other (*Yangpu*) as the control site. In each site, a random sample of entertainment establishments was selected; all selected establishments from *Xuhui* were assigned to the intervention and all those from *Yangpu* to the control condition.

The choice of establishment over individual as the unit of sampling and study participation was preferred for several reasons. First, it would offer cost savings in sampling and intervention delivery. Second, the intervention condition was to use trained peer educators to assist in the group sessions and to conduct peer outreach outside the sessions. The strategy would work better if session participants were from the same establishment who knew each other than if they were individually randomly selected with no connections. Third, it could further help to control across-condition contamination.

Sampling and Recruitment

All registered entertainment establishments in the two districts were listed by size and type of business. Because the plan was to enroll all eligible women working in a selected establishment, sample selection gave priority to small to medium-sized establishments to prevent overrepresentation by a few large ones in the sample. Further, small establishments are the easy targets of government crackdowns on commercial sex and subject to frequent closure. To avoid excess sample attrition in the post-intervention assessment surveys, sample selection also gave priority to relatively more stable karaoke TV bars (KTVs). With these considerations, 24 establishments were randomly sampled and consented to participate in the study. Of those, 13 were KTVs, 1 beauty salon, and 10 massage parlors, approximately evenly divided and matched between the intervention and the control site.

In each selected establishment, research staff approached individually all FEWs, explained to them the purpose of the study and their roles and compensations and asked if they were interested in participating. The women were assured of confidentiality, shown procedures to protect privacy, and informed of the right to refuse. Of the 806 eligible FEWs in the 24 establishments, 724 consented to participate: 643 from the 13 KTVs and 81 from the 11 small venues.

We experienced a high rate of sample attrition at the 3-month post-intervention assessment survey and were able to follow up with only 445, or 61.5%, of the original sample. A decision was made to make up the lost participants with new FEWs, if there were any, in a participating establishment at the post-intervention survey. This was to maintain reasonable sample sizes for meaningful efficacy evaluations. We also believed that the structural and peer outreach components (detailed below) of the intervention condition would serve as an on-going resource for risk reduction for all (new) FEWs in the establishment. Research staff followed the same recruitment protocols to enroll new participants. Figure 1 shows the numbers of recruits, attrition, and completed interviews by sites.

Intervention and Control Condition

The intervention condition consisted of five 60–90 minutes multimedia group sessions. They were delivered once a week and on-site in the establishment where participants worked. The session setting was informal, typically in a large KTV room with participants sitting around the room. Participants were free to ask any questions any time during the session. Table 1 provides a brief summary of session goals and content. An interventionist worked with a trained peer educator from the establishment to conduct the group sessions. The interventionist was responsible for the didactic contents, while the peer educator assisted in role-playing games, situational simulations, skills demonstration, and goal setting exercises. The peer educator was also trained and responsible for peer outreach on a continuing basis throughout the 12-months following the last group session.

In addition, two 60-minute sessions were conducted by an interventionist among establishment owners and mamas of the study participants. The sessions focused on HIV/STI risks and prevalence among FEWs, the importance of a disease-free work force for business success, and things owners/mamas can do to create a supportive environment for sustained risk reduction. Through experience sharing, owners/mamas identified their concerns for promoting and requiring condom use and worked out collectively strategies to address those concerns. With goal setting exercises, owners/mamas developed action plans to make condoms and HIV/STI risk reduction materials available on the premises, regularly inform FEWs of their support for and expectation of risk reduction behavior, encourage FEWs to seek STI testing and treatment, and make it known that they would stand by FEWs' decision to insist on condom use in case of clients' refusal.

The control condition is a group-based didactic HIV and health education. For attention control, the informational education was also divided into five sessions and delivered once a week on-site in the establishment. The sessions were conducted by trained health educators, covering basics about reproductive health, HIV/STIs and their transmission, prevention, and treatment, and risky/protective behaviors. No peer educators were used in the sessions, nor was there any on-going peer outreach outside the sessions in the control site.

All participants from both conditions were offered free confidential screening for syphilis at the baseline and given a pocket-sized booklet developed by the study. The booklet consisted of 100 questions and answers on reproductive health, common STI symptoms, HIV/STI prevention; it also listed the contact information of all free VCT services in Shanghai. Further, a clinic-like office was established in both the intervention and the control site to provide free on-going access to risk reduction resources, including referrals, and a social setting for peer interactions to facilitate positive peer influence, norm building, and empowerment. They remained open for 12-months following the last group session. The offices were each staffed by a retired STI physician who provided free services in education, consultation, and referral as well as free condoms. The addresses and phone numbers of the study offices were listed on participants' study ID; participants were encouraged to visit or call the office for any questions and concerns.

Assessment Surveys and Outcome Measures

Both the baseline (pre-intervention) and the 3-month post-intervention surveys were conducted face-to-face in Mandarin by trained interviewers using a structured questionnaire. The interviewers were blind to respondents' assignment in the intervention or control condition. The interviews lasted about 80 to 90 minutes and took place at a private room in the establishment where participants worked. To protect the confidentiality of the interviews, all interviews were conducted one-on-one between the respondent and the interviewer; no one else was allowed to be in the room during the interview.

The same questionnaire was used in both the baseline and the 3-month post-intervention surveys. In addition to socio-demographic characteristics, the survey questionnaire gathered detailed information on behavioral outcomes and measures of the IMB constructs and social influences of gender (group) norms, peer support, relationship power, and venue support. The main behavioral outcomes were self-reports of condom carrying in the past month and consistent condom use with a stable or non-stable partner in the past month or the last three sexual intercourses. A stable partner was defined in the study as the husband/boyfriend/lover of the study participant, while a non-stable partner a client or anyone other than her husband/boyfriend/lover. All measures of the IMB constructs and social influences were composite indexes built from answers to a set of statements and questions. Table 2 provides a summary of the composite indexes, including the number and sample of questions in each index and the consistency coefficient of the index.

Results

At baseline, there were no significant differences in socio-demographic characteristics between participants enrolled in the intervention and the control conditions (Table 3). Compared to those in the control condition, participants in the intervention condition scored significantly higher on prevention intentions and self-efficacy in condom use with non-stable partner(s); they also scored significantly higher on three of the six social influence measures. For the behavioral outcomes, the two groups did not differ significantly in the likelihood of consistent condom use with a stable partner. However, for both the monthly and the last-three-sex measure, participants in the intervention condition reported a much higher rate of consistent condom use with non-stable partner(s) than participants in the control condition. In terms of the likelihood of always carrying condoms, the two groups again did not differ significantly at the baseline.

The pre- and post-intervention (within-group) comparisons in Table 4 revealed that participants in both the intervention and the control condition significantly increased their HIV prevention intentions with a stable partner, reduced their negative attitude toward condom, and improved their self-efficacy in condom use with non-stable partner(s) at 3-month post intervention. Participants in both conditions also reported significant changes from pre- to post-intervention surveys in all measures of social influences. Except for the change in peer support for condom use with non-stable partner(s), the pre- to post-intervention change in all other measures of social influences was more pronounced among participants in the intervention than in the control condition. All changes were in the direction consistent with the goal of the intervention sessions, e.g., increases in peer discussion of HIV/STI prevention and increases in peer support for condom use. Limiting the analysis to the original participants (the right panel) made no big differences in the pre- and post-intervention comparisons both within and between the two groups.

For changes in behavioral outcomes, participants in both the intervention and the control condition reported a significantly higher monthly rate of consistent condom use with a stable partner at 3-month post-intervention than at the baseline (top panel, Table 5). The increase

was more significant among participants in the intervention (14.3 percentage points) than the control condition (12.9 points). In terms of condom use in the last three sexual intercours with a stable partner (the second panel), participants in the intervention condition, particularly among the original participants, reported a significantly higher rate of always using a condom at 3-month post-intervention. By contrast, participants in the control condition reported no significant pre- and post-intervention changes in the rate of always using a condom in the last three intercours.

For sex with non-stable partner(s), participants in the intervention condition had a significantly higher rate of consistent condom use than participants in the control condition at the baseline (third and fourth panel). While participants in both conditions reported increases in the rates of always using a condom in the last month or last three sexes from the pre- to 3-month post-intervention, the increases were more significant among participants in the control than in the intervention condition. The between-group difference in the rates of consistent condom use was considerably reduced at 3-month post-intervention as compared to that at the baseline. Only for the rate of always using a condom in the last three sexual intercours for the sample as a whole, did participants in the intervention condition maintain a statistically significantly higher rate (85.8%) than participants in the control condition (68.5%). Among the originally recruited participants, the between-group difference in the rate of always using a condom with non-stable partner(s) in the prior month was completely erased, and that in the last three sexual intercours was also no longer statistically significant at 3-month post-intervention.

Lastly, participants in both the intervention and the control conditions reported significant increases in the rates of always carrying condoms from pre- to post-intervention. The increase was more pronounced in the intervention (21.7 percentage points) than in the control condition (18.5 points) among all participants. However, among the originally recruited participants, the increase was more significant in the control (23.3 points) than in the intervention condition (17.6 points).

Discussion

Despite evidence that female entertainment workers in China are at increased risk of acquiring or transmitting HIV and other STIs, risk-reduction behavioral interventions remain limited and focused on prevention education and voluntary counseling and testing (Li et al., 2006; Liao et al., 2006; Ma et al., 2002). Two recent studies (Liao et al., 2006; Rou et al., 2007) had used health clinic/center based staff or peer outreach approaches to risk-reduction, but neither employed a random controlled experimental design. To our knowledge, this study was the first randomized controlled trial of a multi-component intervention among female entertainment workers that address simultaneously individual cognitive processes and social influences of behavior change.

Based on the 3-month post-intervention assessment, the current study found that the small group-based, peer-assisted multi-component intervention was effective in promoting positive social influences of HIV/STI risk reduction. However, most prior interventions, including those cited above, did not explicitly address the social influences of behavior change. This study also found that the behavioral intervention was effective in increasing condom use with a stable partner. Compared to participants in the control condition, participants in the intervention condition reported greater, more significant increases from pre- to post-intervention in the rates of consistent condom use with stable partner(s). This is important as prior interventions in FSWs often did not address the risk associated with a stable partner (Li et al., 2006; Liao et al., 2006) or were found not effective in risk-reduction with a stable partner (Rou et al., 2007).

However, the intervention's efficacy in reducing unprotected sex with non-stable partner(s) could not be reliably established at 3-month post-intervention. Compared to participants in the control condition, participants in the intervention condition reported smaller and less significant pre- and post-intervention increases in the rates of consistent condom use with non-stable partner(s). There are several plausible explanations for the less than convincing efficacy of the intervention. First, although the control condition was mainly educational, it might have contained sufficient social influence content. For example, participants in the control also had access to a clinic-office and received regular personal visits by a trained participant tracker, who might have acted like a peer educator as a continuous source of reminder and reinforcement. As a result, participants in the control condition might have been exposed to similar positive social influences of behavior change as in the intervention condition.

Second, there might be a "ceiling" effect, as participants in the intervention condition had already a very high rate of consistent condom use with non-stable partner(s) (over 70%) at the baseline. Further increase from that high level would be more difficult than from the baseline rate found among participants in the control condition (below 50%). In fact, none of the prior interventions among female entertainment workers cited earlier was able to increase the rate of consistent condom use much beyond 70%. Third, the key element of the intervention condition was social influence of behavioral change; its full impact might take more time to materialize, especially when the rate of consistent condom use was already high. We will reassess the intervention's long-term efficacy when the 12-month post-intervention assessment data become available.

The higher than expected sample attrition, resulting partly from the increased government crackdowns on commercial sex before and during the 2008 Beijing Olympic Games, and the replacement of lost participants with new recruits at the post-intervention survey might have complicated the efficacy assessment. On average, the attrition rate was higher in the control (43.7%) than in the intervention condition (34.0%); participants lost to attrition tended to have a lower rate of consistent condom use with non-stable partner(s) at the baseline. Although the new recruits did not differ from the original study participants in socio-demographic characteristics (data not presented), the new recruits in the intervention condition, who did not participate in and hence did not benefit directly from the intervention, reported a considerably higher rate of consistent condom use with non-stable partner(s) than the originally recruited participants. By comparison, the new recruits in the control condition reported a considerably lower rate of consistent condom use with non-stable partner(s) than the original participants. The same unexpected across-group contrast between the newly recruited and the originally recruited participants was repeated when the rate of always carrying condoms was examined, which apparently contributed to the more favorable efficacy assessment of the intervention condition for that measure when it was based on all participants than on original recruits only.

In summary, the 3-month post-intervention assessment provided preliminary evidence that the multi-component intervention is effective in promoting positive social influences of risk-reduction and in turn reducing unprotected sex, particularly with stable partner(s), and holds promise for HIV risk reduction among female entertainment workers in China. Future intervention studies can benefit from more attention to social influences of behavior change and to program content uniqueness between the intervention and the control condition. To be effective, future interventions also need to pay attention to the particular challenges of risk-reduction with stable partner(s).

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Figure 1.
Recruitment, Attrition, and Sample Size by Conditions

Table 1

Brief Summaries of Intervention Goals and Contents by Intervention Sessions.

Sessions	Main Goals	Session Contents
<i>Session 1</i>	Promote reproductive health and disease prevention	Female reproductive system and vulnerability RTIs, treatments, and prevention Fertility, conception, and contraceptives Sexual health Condom and STIs
<i>Session 2</i>	Increase HIV/STI knowledge Enhance prevention motivation	STIs, HIV, and health consequences Routes of HIV transmission Local HIV/STI prevalence and risk Factors contributing to female vulnerabilities Risk is not limited to strangers HIV risk and safe sexual behaviors
<i>Session 3</i>	Build safe sex behavioral skills Build safe sex norms	Knowledge of male and female condoms Costs and benefits of HIV prevention Correct use of condoms and lubricants Incorrect prevention heuristics Consistent condom use as a modern behavior Experience sharing about condom use Collective commitment to condom use
<i>Session 4</i>	Reinforce individual pride and responsibility Build self-esteem and confidence Enhance communication skills	Gender and gender inequalities Experience sharing about what participants feel good about themselves My health and my right/responsibilities Effective ways to talk about HIV/STI risks and and risk reduction with partner(s) Effective ways to persuade partner(s) to use a condom in different situations
<i>Session 5</i>	Understand the impairment of drugs and alcohol on decision-making Promote individual right in sexual relationship Learn to seek peer/social support	Drugs, alcohol, and unsafe sex Common triggers/antecedents of unsafe sex Managing triggers/antecedents of risk sex One can buy my services but not my health Local social support resources Seek peer and management support for consistent condom use/risk reduction

Table 2

Summaries of Composite Index Measures of IMB Constructs and Social Influences.

Composite Index Measures	Number of Item in the Measure	Sample Item in the Measure	Cronbach's Alpha Coefficient
<i>IMB measures</i>			
HIV information	16	HIV cannot be transmitted through hug or sharing of utensils	0.62
Prevention intentions (stable partner)	7	Will discuss condom use before sex	0.82
Prevention intentions (non-stable partner)	7	Will discuss condom use before sex	0.76
Negative attitude toward condom	6	Condom use is troublesome	0.87
Self-efficacy in condom use (stable partner)	7	Persuade the partner to only have sex with a condom	0.87
Self-efficacy in condom use (non-stable partner)	7	Persuade the partner to only have sex with a condom	0.83
<i>Social influence measure</i>			
Traditional gender norms	12	Ignorance is a virtue for women	0.73
Peer discussion of prevention	7	Talk about HIV/STIs	0.86
Peer support for condom use (stable partner)	4	My friends think I should carry condoms all the times just in case	0.84
Peer support for condom use (non-stable partner)	4	My friends think I should carry condoms all the times just in case	0.85
Lack of relationship power	7	To use or not to use a condom is up to my partner	0.69
Venue support	11	The management team regularly reminds us of STD/HIV risks	0.86

Table 3

Baseline Socio-Demographics, IMB (information, motivation, and behavioral skills) and Social Influence Measures, and Outcome Measures by Intervention Conditions.^a

	Intervention (N=351) ^b	Control (=373) ^b	Difference
<i>Socio-demographic characteristics:</i>			
Age	25.19	23.98	1.21
Currently married (%)	29.63	28.69	0.94
Senior high school or more education (%)	35.90	38.87	2.97
Migrant (%)	96.29	94.62	1.67
Months in Shanghai	31.41	30.37	1.04
Monthly income	5,823.14	4,188.60	1,634.54
<i>IMB measures (composite scores)</i>			
HIV information	10.85	10.51	0.34
Prevention intentions (stable)	3.85	3.83	0.02
Prevention intentions (non-stable)	6.01	5.50	0.51*
Negative attitude toward condom	14.59	14.99	0.40
Self-efficacy (stable)	22.39	21.35	1.04
Self-efficacy (non-stable)	27.55	24.62	2.93**
<i>Social influence measures (composite scores)</i>			
Traditional gender norms	29.15	29.15	0.00
Peer discussion of prevention	16.93	15.45	1.48*
Peer support for condom use (stable)	12.21	11.54	0.67
Peer support for condom use (non stable)	13.89	12.40	1.49**
Lack of relationship power	13.44	13.62	0.18
Venue support	36.40	33.90	2.50*
<i>Condom use in the last month (%)</i>			
Always use a condom (stable)	19.15	14.39	4.76
Always use a condom (non stable)	72.73	47.87	24.86**
<i>Condom use in the last three intercourses (%)</i>			
Use a condom in all three (stable)	33.43	28.05	5.38
Use a condom in all three (non stable)	76.82	49.23	27.59**
<i>Always carrying condoms last month (%)</i>	27.51	14.32	13.19

Notes:

^aResults are based on svy methods (survey design-based methods) in STATA, which correct intra-cluster (establishment) correlations in the significance tests of the between-group differences.

^bSample size varies slightly among the different measures because of missing values. The only exception is condom use in the last three sexual intercourses with a non stable partner, for which only 220 in the intervention condition and 130 in the control condition provided a valid answer on that measure.

*
 $p < 0.05$;

**
 $p < 0.01$

Table 4

Changes in the IMB and Social Influence Composite Index Measures from Baseline to 3-Month Post-Intervention Assessment by Intervention Conditions.^a

	All Three Month Post-Intervention Survey Participants		Original Participants Followed Up at Three Month Post-Intervention	
	Intervention	Control	Intervention	Control
	(N=360) ^b	(N=354) ^b	(N=235) ^b	(N=210) ^b
<i>IMB composite index measures</i>				
HIV information	0.89**	-0.10	1.11**	0.06
Prevention intentions (stable)	0.59*	0.61**	0.59**	0.69**
Prevention intentions (non-stable)	0.22	0.54*	0.25	0.67**
Negative attitude toward condom	-2.05**	-1.52**	-1.70**	-1.79**
Self-efficacy (stable)	1.15	1.90**	1.20*	1.74*
Self-efficacy (non-stable)	1.64**	2.57**	1.76**	2.80**
<i>Social influence composite index measures</i>				
Traditional gender norms	-3.20**	-2.11**	-4.04**	-2.66**
Peer discussion of prevention	2.07**	1.39**	2.06**	1.61**
Peer support for condom use (stable)	1.66**	0.88**	1.63**	1.10*
Peer support for condom use (non stable)	1.64**	1.37**	1.63**	1.70**
Lack of relationship power	-1.82**	-1.31**	-1.98**	-1.66**
Venue support	5.15**	4.45*	5.00**	4.42*

Notes:

^aResults are based on svy methods (survey design-based methods) in STATA, which correct intra-cluster (establishment) correlations in the significance tests of the cross-survey differences.

^bSample size varies slightly among the different measures because of missing values.

*
 $p < 0.05$;

**
 $p < 0.01$

Table 5

Effects of the Intervention on HIV Risk Sexual Behavior Measures.

Sexual Behavior Measures	Baseline		Three-month Post-intervention (All participants)		Three-month Post-intervention (Original participants only)	
	Intervention	Control	Intervention	Control	Intervention	Control
Sex with a stable partner (last month)						
N	235	278	272	286	186	167
% always using a condom	19.2	14.4	33.5	27.3	33.3	27.0
Change from baseline	/	/	14.3**	12.9*	14.1**	12.6**
Sex with a stable partner (last three intercoursess)						
N	329	353	348	350	233	207
% always using a condom	33.4	28.1	44.8	39.4	46.4	36.7
Change from baseline	/	/	11.4*	11.3	13.0**	8.6
Sex with a non-stable partner (last month)						
N	132	94	181	90	105	57
% always using a condom	72.7	47.9**	81.2	72.2	77.1	77.2
Change from baseline	/	/	9.2	24.3*	5.1	29.3**
Sex with a non-stable partner (last three sexual intercoursess)						
N	220	130	261	184	163	116
% always using a condom	76.8	49.2**	85.8	68.5**	84.7	72.4
Change from baseline	/	/	9.0**	19.3**	7.9*	23.2**
Carrying condoms last month						
N	349	370	360	354	235	210
% always carrying condoms	27.5	14.3	49.2	32.8	45.1	37.6
Change from baseline	/	/	21.7**	18.5**	17.6**	23.3**

Note:

Results are based on the *svy* methods (survey design-based methods) in STATA, which correct intra-cluster (establishment) correlations in the significance tests of the between-group and across-survey differences.

* $p < 0.05$;

** $p < 0.01$