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Prevention Options for Positives: The Effects of a Health Communication Intervention for Men Who Have Sex With Men Living With HIV/AIDS

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This article reports the results of a small-scale quasi-experiment that tested the efficacy of the Prevention Options for Positives intervention. The experiment tested for the outcomes of group sessions combined with individual-level counseling (ILC) versus ILC-only for men who have sex with men who are HIV positive. Both arms of the intervention were based on behavior change theory and dealt specifically with communication outcomes. The results indicate that the group- and individual-level interventions combined have a greater impact on risk communication behaviors with main partners than did the ILC-only sessions. Group-session/ILC participants were more likely to decide not to have sex if they were drunk or high, and more likely to tell their partner and ask their partner about HIV status than were participants in the ILC groups. Knowledge about HIV was relatively high, and there was little change across groups. The Prevention Options for Positives intervention influenced the relative importance of various referent groups, but normative beliefs were not affected. The implications of these findings for communication practice and research with HIV-positive men who have sex with men are addressed.

Of the newly diagnosed HIV infections in the United States during 2003, it is estimated that approximately 63% were among men who were infected via sexual intercourse with other men (Centers for Disease Control and Prevention [CDC], 2005). More than 20 years into the HIV pandemic, men who have sex with men (MSM) remain a primary focus of HIV-prevention efforts in the United States (CDC, 2005; Kelly, St. Lawrence, Hood, & Brasfield, 1989). Despite years of prevention efforts, HIV infections among this population remain relatively steady; it is believed that of the 950,000 people estimated to be living with HIV in the United States, 54% are MSM (CDC, 2005).

The obvious reason for this trend is that MSM who are living with HIV/AIDS (MSM-H/A) continue to engage in risky behaviors and, thus, continue to spread HIV to others. Research indicates that initially when people test positive for the presence of HIV antibodies, they are more likely to engage in risk-reduction behaviors than those who test negative (Marks, Crepaz, Senterfitt, & Janssen, 2005). There is, however, little evidence to suggest that these risk reduction behaviors are maintained over time (Morbidity and Mortality Weekly Report, 2000, 2004).
Indeed, there are data that indicate that risk-reduction behavior maintenance by people living with HIV or AIDS (PLWH/A) attenuates over time (Kalichman, Kelly, & Rompa, 1997). About one third of HIV-seropositive MSM continue to have unprotected sex after learning their HIV seropositive status, a rate that parallels levels of unprotected sex among seronegative MSM (Anonymous, 1998; Kalichman, 2000). Kalichman et al. (2001) estimated that the rate of unprotected sex across all PLWH/A populations is about 33% and is higher for persons without steady sex partners (CDC, 2004). Despite the prevalence of risky behaviors among MSM-H/A, there are relatively few published studies that have tested HIV-prevention interventions designed for MSM-H/A (B. T. Johnson, Carey, Chaudior, & Reid, 2006). Interventions for PLWH/A have often centered on the psychological challenges of being infected (e.g., Kalichman et al., 2001) because these factors are linked to risk behaviors. Attention is shifting to include not only care and supportive interventions (e.g., MacNeil, Mberesero, & Kilonzo, 1999) but also provision of primary prevention strategies for those who are HIV-infected and for examination of the risk-reduction outcomes associated with the combination of care and prevention interventions (Rotheram-Borus et al., 2001).

The efficacy of communication interventions for behaviors such as substance use (e.g., Warren et al., 2006) has been established. Moreover, despite the fact that interpersonal skills training appears to be critical for the success of interventions among HIV-negative persons (Edgar, Noar, & Murphy, 2007; Herbst et al., 2005), intervention content designed specifically to teach persons who are HIV-positive to communicate with their sex partners appears to be relatively scarce (B. T. Johnson et al., 2006). Therefore, this study tests the effectiveness of a theoretically based intervention for MSM-H/A that is designed to reduce risky behaviors and modify normative perceptions. The following section reviews what is known about effective interventions for MSM generally and PLWH/A more specifically.

**HIV-PREVENTION INTERVENTIONS FOR MSM**

Although there are relatively few published evaluations of interventions targeting HIV-positive MSM (B. T. Johnson et al., 2006), tests of HIV-prevention interventions designed for HIV-seronegative MSM provide several important lessons about intervention effectiveness that are relevant here. In brief, the literature suggests that these interventions should be based on theory, should involve multiple sessions, and can be conducted in groups for maximal effectiveness. A meta-analysis of 33 prevention interventions targeting MSM indicated that theory-based, multiple-session interventions substantially decreased unprotected anal intercourse and number of sexual partners (Herbst et al., 2005). Other meta-analyses have found similar effects (e.g., W. D. Johnson et al., 2002; Kalichman, Carey & Johnson, 1996). There are a number of interventions that have specifically targeted MSM-H/A and that provide some insight into the types of interventions that are most effective.

Recently, Kalichman and colleagues (Kalichman et al.; 2001; Kalichman, Rompa, & Cage, 2005) tested a group-based intervention for both men and women infected with HIV or AIDS that was designed to enhance risk-reduction skills and build self-efficacy. Participants attended either a five-session social–cognitive theory–based risk-reduction intervention or a five-session health maintenance social support group intervention. The study found that the theory-based intervention reduced rates of unprotected vaginal and anal intercourse at both the 3-month and 6-month follow-up. The social support group intervention was actually associated with increased rates of unprotected vaginal and anal intercourse at both follow-ups relative to baseline.

B. T. Johnson et al. (2006), in their meta-analysis of prevention interventions for HIV-positive persons identified one study that specifically targeted MSM-H/A and that met their criteria for inclusion. The Seropositive Urban Men’s Intervention Trial (SUMIT; Wolitski, Gomez, Parsons, & the SUMIT Study Group, 2005; Wolitski, Parsons, & Gomez, 2004) compared the efficacy of a single-session safer-sex information intervention with a multiple-session intervention containing safer-sex information, interactive learning activities, and discussion groups facilitated by an HIV-positive peer. The multiple-session intervention was more effective in reducing unprotected anal intercourse with an unknown-status partner at a 3-month follow-up; other predicted outcomes were not significant at 3- or 6-month follow-up.

Thus, to add to our understanding of the efficacy of primary prevention for MSM-H/A, this project presents a test of a prevention intervention targeting MSM-H/A. The intervention design draws from the lessons of previous research in that it is based explicitly in behavior-change theory (theory of reasoned action and social–cognitive theory), involves multiple sessions, and includes a group-level component (Herbst et al., 2005). Moreover, this intervention is based on needs assessment and formative research (Lapinski, Peterson, & Randall, 2002) and extends previous research in that the intervention content (outlined in Table 1) focuses primarily on communication issues (negotiation of risk reduction and appropriate disclosure of status) with the acknowledgment that enhancement of interpersonal skills has been linked with risk-reduction behaviors (Herbst et al., 2005; see Edgar et al., 2007, for a review). The project is referred to as the Prevention Options for Positives (POP) project.

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1 Other studies identified in the B. T. Johnson et al (2006) meta-analysis contained HIV-positive MSM in their sample but did not specifically target them with the intervention or did not contain data appropriate for meta-analysis.
This study reports on the relative effectiveness of two interventions for changing knowledge about HIV, communication about behavioral risk, and normative perceptions. Participants took part in one of two intervention conditions: individual-level counseling (ILC) only or a series of six group-level sessions (GLS) paired with individual-level counseling (the GLS-ILC arm). Both arms of the intervention were designed by a consortium of staff from a nongovernmental, community-based organization, representatives of a state health department, and a university researcher. A state HIV/AIDS consortium made up of community members consulted on content decisions. The GLS were designed to provide education, enhance communication skills relevant to behavioral risk reduction, and facilitate perceived normative support for risk reduction. Individual-level prevention counseling complemented the GLS as a mechanism to facilitate education and to enhance risk-reduction skills.

**TABLE 1**

<table>
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<tr>
<th>Session</th>
<th>Description of Session</th>
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| I: Project introduction | Topics and types of issues to be explored were introduced and ground rules for communication during the remaining sessions were created by group members.  
**SCT element:** A peer role model (person living with HIV) facilitated all of the sessions. Through the privacy squares exercise reciprocal determinism was explored by examining several spheres of social influence.  
**TRA element:** Referent others in participants' lives were identified and discussed. |
| II: Psychosocial issues | Psychosocial factors (e.g., outcome expectations, norms, attitudes) that impact the ability of PLWH/A to disclose HIV status to significant others and sex partners and to discuss safer sexual practices were identified.  
**SCT/TRA elements:** The concept of outcome expectations was explored based on group/individual problem-solving exercises.  
**TRA elements:** Subjective norms were addressed through group discussion and brainstorming activities. Their impact on individual behavior was discussed. |
| III: Communicating about HIV status | This session included role-play activities and discussion specific to disclosure (to referent other chosen by participant) and communication.  
**SCT elements:** Participation in role-playing enhanced communication skills through personal practice as well as through observing other’s modeled behaviors. Through structured practice, participants explored various expected outcomes of a behavior and evaluated possible consequences.  
**TRA elements:** Subjective norms, including normative beliefs of referent others, were discussed in relation to communicating about status. Outcome expectations were redefined through role-playing and positively reframing potential partner responses. Behavioral intent to disclose status was discussed before and after the session. |
| IV: Safer sex, part 1 | Basic information regarding confirmed transmission routes and assumptions of infectivity were addressed.  
**SCT elements:** Participants worked through an exercise that allowed for vicarious learning in applying new methods of risk reduction in various sexual situations. Through participation in group activities, participants explored expected outcomes of risk behaviors and evaluated possible consequences.  
**TRA elements:** Referent others' beliefs about risk-reduction behaviors were examined and evaluated. Behavioral intent was discussed before and after the session. |
| V: Substance use | This session helped participants to identify links between personal substance use and sexual risk behavior.  
**SCT elements:** Participation in group exercises and connected introspection exercises designed to increase skills and self-efficacy through personal practice.  
**TRA elements:** Subjective norms were explored through group discussion and brainstorming activities; the impact of norms on individual behavior was discussed. Behavioral intent was explored before and after the session. |
| VI: Safer sex part II | This session helped participants to explore the context of sexual encounters and how it influences harm reduction, also on building skills and confidence for communicating about sexual risk reduction. Participants identified barriers and facilitators to safer sexual behaviors.  
**SCT elements:** Participation in group exercises for vicarious learning in applying new methods of communicating with partners in various sexual situations. Through structured practice, participants explored various expected outcomes of a behavior and evaluated possible consequences.  
**TRA elements:** Outcome expectations were redefined through dyadic work in which participants practiced talking about safer sex in a supportive environment. Behavioral intent was explored before and after the session. |

*Note.* The entire curriculum is available from the first author. SCT, social–cognitive theory; TRA, theory of reasoned action.
Further, it provided additional opportunities to ensure appropriate referral to medical and psychosocial support services. The two components are described in detail in the following section.

**Group-Level Sessions**

All GLS sessions were peer-facilitated by the same male PLWH/A. This form of demographic similarity (biological sex and HIV status) was chosen because formative research indicated that HIV infection status was more salient than other demographic factors for PLWH/A, that PLWH/A prefer prevention interventions facilitated by other PLWH/A (Lapinski et al., 2002), and because the intervention content dealt specifically with living with HIV. The content of the six sessions is described in Table 1; the table displays the ways in which the theoretical perspectives were used to guide intervention content; the content of the entire intervention is available from the first author. The topics covered in the sessions were designed based on needs assessment and formative data. The feeds assessment indicated a consistent need for help negotiating and maintaining safer sex practices, communicating about HIV status with others, dealing with the psychosocial challenges of living with HIV, and dealing with the role of substance use in enactment of risk behaviors (Lapinski et al., 2002). The group format was chosen because of previous research indicating the effectiveness of group interventions (Herbst et al., 2005) and because of a stated need for opportunities for social interaction with other PLWH/A (Lapinski et al., 2002).

The GLS were designed based on the theory of reasoned action (TRA) and social–cognitive theory (SCT). Fishbein and Ajzen (1975; Ajzen & Fishbein, 1980) suggest specific techniques for constructing interventions based on the TRA, and the theory has been used to change HIV-related behaviors among other populations in past research (e.g., Fishbein & Middlestadt, 1989). According to the TRA (Ajzen & Fishbein, 1980), a person’s behavior is predicted by behavioral intentions, which in turn are predicted by attitudes toward the behavior and subjective norms. Attitudes are a function of behavioral beliefs and evaluations of those beliefs. Subjective norms are a function of normative beliefs and the motivation to comply with referent others. Fishbein and Ajzen (1975) state that two sets of beliefs must be altered prior to behavior change: (a) beliefs about the consequences of performing a certain behavior and the evaluation of those consequences (attitude); and (b) beliefs about what other people or referents think about the behavior to be performed and the motivation to comply with those referents (subjective norms).

Bandura’s (1977) SCT has been used as the theoretical basis for a number of HIV/AIDS-prevention projects (Bandura, 1989). A full treatment of the theory is not warranted here because this is not a direct test of the theoretical model; the intervention presented here uses Bandura’s notions of modeling and vicarious learning. The ways in which the GLS integrated SCT concepts are described in Table 1.

**Individual-Level Counseling**

The individual-level sessions followed a state-level HIV-prevention counseling protocol (adapted from the CDC’s guidance for client-centered counseling). This client-centered counseling model was developed based on the AIDS risk reduction model and the stages of change model (Kamb et al., 1998). Kamb and her colleagues provided evidence for the effectiveness of this model in changing HIV risk behaviors among HIV-negative or recently HIV-positive persons (Kamb et al., 1998).

In the ILC sessions, certified HIV-prevention counselors assisted participants in assessing HIV risk and in the development of individualized HIV risk reduction plans. This method allowed for one-on-one problem solving, opportunities to discuss skills, personalized planning relative to each participant’s risk behavior(s), and continued support for behavior changes that reduce risk. Appropriate referrals were made to medical and supportive services, pursuant to established guidelines and standards for HIV-prevention counseling.

Thus, this study was designed to test several hypotheses, the primary of which are reported here. The first hypothesis examined which of the interventions was more effective for enhancing HIV-related knowledge and reducing HIV transmission risk behaviors. It was predicted that—because of the explicit theoretical basis of the GLS/ILC, the additional dose experienced by participants, and the group-based nature of the intervention—the GLS/ILC intervention would be more effective than the ILC. In the case of knowledge about HIV, we were interested in expanding knowledge about issues critical to living with HIV (e.g., the relationship between taking HIV meds and risk behaviors, the role of CD-4 count in transmission risk). In the case of risk-reduction behaviors, a hierarchy of behaviors that involved negotiation of sexual risk with partners was included (i.e., avoiding sex if drunk or high, disclosing HIV status).

The following hypotheses were put forth:

H1: Postintervention, the GLS/ILC group will be more knowledgeable about HIV-positive-specific information than will the ILC group, and the knowledge level will be sustained over time for the GLS/ILC group.

H2: Postintervention, participants in the GLS/ILC group will be more likely to engage in communication behaviors to reduce their risk of transmitting HIV to others than will participants in the ILC group.

An additional objective of this intervention was to determine whether it was possible to change several of the exogenous variables in the TRA. In particular, this study was designed...
to determine whether or not it is possible to modify PLWHA’s perceptions of the relative importance of referent others and their perceptions of the normative beliefs of others. We were interested here not in testing the model but in determining the possibility of changing participants’ perceptions of normative beliefs of others and the relative importance of referent others to enactment of risk behaviors related to transmission of HIV. Previous research has documented the importance of social networks for people living with chronic disease (see Brashers, Neidig, & Goldsmith, 2004, e.g.) and our formative data indicated a focus on external others (e.g., concern about communicating status to partners and family). Because of the centrality of discussions of the normative beliefs of referent others to the content of the GLS/ILC intervention, this study also tested for changes in these beliefs. Specifically, it was predicted that participation in the GLS/ILC intervention might spur discussions with family members about living with HIV and lead to shifts in normative beliefs. This led to the following research questions:

RQ1: Will participants in the GLS/ILC change their evaluation of the relative importance of referent others?

RQ2: Will the normative beliefs of participants in the GLS/ILC group change during the course of the intervention?

METHOD

Participants

Participants in the POP project were 72 HIV-positive MSM (including 11 behaviorally bisexual men). Participants were recruited by staff from a local community-based organization in the state of Michigan by approaching agency clients and members of their networks. The mean age of participants was 42.63 (SD = 8.25). Forty one percent of participants identified themselves as African-American, 49% as European-American/White, 4% as Hispanic/Latino, 2% as Native American, and 4% as other. Participants reported as behaviorally gay (81%), bisexual (16%), and other (3%). At the onset of the study, the intervention group, the members of which were assigned to both group-level sessions and individual counseling sessions, included 24 MSM. The comparison group, the members of which were assigned to only individual counseling sessions, was composed of 48 MSM. Participants in the intervention and control group did not differ significantly from one another on demographic variables.

Participants were asked about their oral, anal, and vaginal sex partners within the month prior to completing the survey; specifically, whether they reported having a sex partner that they considered their main partner (35%, n = 27), had sex partners other than a main partner (57%, n = 21), or had no sex partners within the month (30%, n = 20). Those who reported a main partner could also report having other sexual partners.

Participants were also asked to report information regarding the time line and status of their infection with HIV. Participants had known of their HIV-positive status on average for 10 years (SD = 4.98), and 36 participants reported an AIDS diagnosis; average number of years since diagnosis = 7 (SD = 4.35). Only those men who reported that they had been HIV-positive for at least 2 years were eligible for inclusion in the POP project because of concerns over stability of enactment of risk behaviors.

Design

A pretest–posttest quasi-experimental design was used to test the hypotheses and research questions outlined previously. There were two administrations of the posttest, one immediately following completion of the entire intervention and the second at 6 weeks postintervention.

Procedure

After participants were recruited into the program, participants completed informed consent and the self-administered pretest to assess initial levels on program outcomes. The measures for the hypotheses tested in this study were embedded in other measures on the questionnaire. Following completion of the pretest, participants were assigned by researchers based on the location of the agency from which they were recruited to either the GLS/ILC or the ILC group; participants in the intervention group were placed in small cohort groups of 5 to 10 PLWH/As each. Participants in the GLS/ILC groups attended both the group-level intervention with the cohort group (once every other week for six, approximately 1.5-hr sessions) and three individual HIV-prevention counseling sessions (lasting an average of 45 min each) during the 12-week project period. Participants in the ILC group participated in three sessions of individual-level prevention counseling only. All of the sessions were conducted in community-based organizations.

A posttest survey, which contained the same measures as the pretest, was administered immediately following completion of the final session; all participants completed all intervention activities prior to completing the posttest. A second posttest was administered 6 weeks later as part of a POP graduation event and was intended to assess the temporal stability of changes in project outcomes. The time frame was chosen to reduce the risk of threats to internal validity of the design such as history effects, maturation,
and mortality. Participants who did not attend the event were mailed a questionnaire. All participants received equal monetary and gift incentives for participation.

Measures

Knowledge. Nine items asked participants about their knowledge of HIV aspects that are specifically relevant for PLWH/A. These items involved a true/false response format and included items such as “Using alcohol or other drugs decreases the effectiveness of HIV medicines” (True) and “If you have an undetectable viral load you can not pass HIV to others” (False). Responses were summed to form a knowledge scale in which higher numbers indicate greater knowledge of HIV ($\alpha = .81$).

Risk-communication behaviors. To determine self-reported risk-communication activities, participants were asked a series of 8 items about the risk-reduction steps they took the last time they had the opportunity to have oral, anal, or vaginal sex. Participants were asked to report whether or not they had performed each of these communication behaviors with main and other partners (e.g. “Refused sex because I was drunk or high” and “Asked to have oral rather than anal sex”). Participants could respond with either “yes,” “no,” “don’t know,” or “does not apply to me.” Questions were coded such that engaging in a risk-reduction behavior or not engaging in a risky behavior, was coded as “1,” and risky behaviors and not knowing whether or not one had engaged in the behavior was coded as “0.” To create a quantitative measure of risk-reduction behaviors, an overall risk index was created by summing the responses to each statement for sex with main partners, sex with other partners, and for those who had not had a sex partner within the month prior to completing the questionnaire. Higher numbers indicated greater use of risk-reduction strategies. This measure was designed to reflect a hierarchy of risk-reduction steps.

Subjective norms. Normative perceptions were measured, consistent with recommendations by Ajzen and Fishbein (1980). Participants were asked to rate the importance of various referent groups (friends, family, the PLWH/A community, others) to the decisions they make about living with HIV. These items were scored on a 7-point scale ranging from 1 (not at all) to 7 (a lot) in which higher scores indicates greater importance. Participants were then asked to rate a series of normative beliefs on the extent to which they believed they were true. These items, which focused on three behavioral domains (wearing condoms, discussing HIV status with sex partners, and having sex while drunk or high), were created based on formative research indicating these as salient normative beliefs among this population (Lapinski et al., 2002) and were responded to on a 5-point Likert-type scale in which higher numbers indicated greater endorsement of the normative belief. Questions were created around each of the behavioral domains for friends (4 items; $\alpha = .75$; e.g., “My friends have tried to convince me not to have sex when drunk or high”), family (3 items; $\alpha = .69$; e.g., “I know my family probably thinks I should talk to my sex partners about my HIV status”), and the PLWH/A community (3 items; $\alpha = .71$; e.g., “Members of the PLWH/A community think it is OK to have sex without telling partners that you are HIV positive”).

RESULTS

Analysis of the knowledge scores indicated that initial levels of knowledge were high given that the highest possible score was nine (see Table 2). Differences between the ILC and GLS/ILC groups were not large at any of the three administrations of the measure. The GLS/ILC participants experienced a greater magnitude of change from pretest to posttest, but this increase was not statistically significant, $t(18) = 1.57, p = .13$. Across groups there was a small increase in levels of knowledge from pretest to the first posttest, $\Delta M = .29, \Delta SD = 1.16, t(64) = 2.04, p = .05$. There was a trend toward leveling off of knowledge over time; scores from the pretest to the second posttest were not significantly different, $\Delta M = .23, \Delta SD = 1.27, t(59) = 1.42, p = .16$.

H2 addressed risk communication behaviors and predicted that the participants in the GLS/ILC would exhibit a greater increase in risk-communication behaviors than participants in the ILC. Chi-square was used to test for significant differences between the experimental groups on each of the risk behaviors. The tests revealed that there were not significant differences between groups on any of the behaviors with main partners at the pretest, thus difference on the posttest are attributable, at least in part, to the effects of the intervention. There were significant differences between the GLS/ILC and ILC groups for several of the behaviors with

| TABLE 2 |
| Participants’ Scores on the 9-Item Knowledge Measure | | |
| | Pretest | Posttest | Delayed Posttest |
| | $M$ (SD) | $n$ | $M$ (SD) | $n$ | $M$ (SD) | $n$ |
| Across conditions | 7.10 (1.43) | 70 | 7.46 (1.32) | 71 | 7.37 (1.29) | 66 |
| GLS/ILC | 6.77 (1.72) | 22 | 7.48 (1.53) | 23 | 7.50 (1.50) | 24 |
| ILC | 7.25 (1.26) | 48 | 7.46 (1.21) | 48 | 7.31 (1.16) | 42 |

Note. T-tests indicate means having the same subscript differ significantly at $p > .05$. GLS/ILC, group sessions combined with individual-level counseling; ILC, individual-level counseling only.

$^3$Because of the small sample size, all significance tests should be considered with the caveat that statistical significance is highly dependent on this factor.
main partners at posttest, including that GLS/ILC participants were more likely to decide not to have sex if they were drunk or high, \( \chi^2(1) = 10.48, p = .001 \), and more likely to tell their partner, \( \chi^2(1) = 4.27, p = .04 \), and ask their partner, \( \chi^2(1) = 4.93, p = .03 \), about HIV status than the ILC group. Differences in risk behaviors between experimental groups were not significantly different for partners other than a main partner at posttest; none of the differences were significant at the delayed posttest. About 20 participants reported they had not had any sex partners in the month prior to each administration of the survey and did not respond to questions about risk communication at last sex. The scores for each item are presented in Table 3.

Scores on the risk index were compared to determine if the GLS/ILC participants were more likely to engage in risk-reduction actions than the ILC participants. For the main partner risk index, tests for differences indicate that although the two groups did not differ significantly on pretest scores, at immediate posttest, the GLS/ILC group, \( M = 2.64, SD = 2.33 \), had a significantly higher mean score on this index than those in the ILC condition, \( M = 1.15, SD = 1.18; t(29) = 2.37, p = .03, r = .40 \), indicating that the GLS/ILC participants were more likely to take risk-reduction steps at posttest than participants in the ILC-only arm. Other significant differences are highlighted in Table 4.

| TABLE 3 | Participants Reporting That They Engaged in Each Communication Behavior the Last Time They Had Sex or Had the Opportunity to Have Sex With a Main Partner or Other Partner |
|---------|-----------------|-----------------|
|         | Main Partners   | Other Partners  |
|         | GLS/ILC         | ILC             | GLS/ILC         | ILC             |
|         | Posttest % (n)  | Posttest % (n)  | Posttest % (n)  | Posttest % (n)  |
| ... Ask your partner to pull out before cumming | 4 (1) | 10 (5) | 4 (1) | 8 (4) |
| ... Ask your partner for oral instead of anal sex | 12 (3) | 6 (3) | 0 | 12 (6) |
| ... Tell your partner “no” or refuse sex | 8 (2) | 2 (1) | 4 (1) | 4 (2) |
| ... Ask your partner to use a male or female condom | 15 (4) | 12 (6) | 15 (4) | 14 (7) |
| ... Ask your partner to engage in non-penetrative sex | 23 (6) | 8 (4) | 12 (3) | 12 (6) |
| ... Decide not to have sex because you were drunk or high | 15 (4) | 0a | 4 (1) | 0 |
| ... Ask if your partner was HIV positive (if you don’t know) | 15 (4) | 0a | 19 (5) | 12 (6) |
| ... Tell your partner that you are HIV positive (if they don’t know) | 19 (5) | 6 (3) | 19 (5) | 17 (7) |

Note. Chi square tests indicate scores sharing the same subscript in a row differ significantly at \( p > .05 \). GLS/ILC, group sessions combined with individual-level counseling; ILC, individual-level counseling only.

<table>
<thead>
<tr>
<th>TABLE 4</th>
<th>Descriptive Statistics for the 8-Item Risk-Reduction Index</th>
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<tbody>
<tr>
<td></td>
<td>Across Conditions</td>
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<td>n (M (SD))</td>
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Main partner
- Pretest | 34 | 1.68 (1.70) | 13 | 1.61 (1.85) | 21 | 1.71 (1.64) |
- Posttest | 31 | 1.68 (1.80) | 11 | 2.64 (2.33) | 20 | 1.55 (1.65) |
- Delayed posttest | 28 | 1.32 (2.22) | 11 | 1.45 (3.07) | 17 | 1.23 (1.56) |

Other partners
- Pretest | 25 | 1.88a (1.67) | 9 | 2.22 (1.78) | 16 | 1.69a (1.62) |
- Posttest | 19 | 3.05a (1.92) | 7 | 2.85 (2.19) | 12 | 3.16a (1.85) |
- Delayed posttest | 11 | 3.27a (2.41) | 6 | 4.16 (2.78) | 5 | 2.20a (1.48) |

Note. Higher scores indicate greater numbers of self-reported risk reduction behaviors. T-tests indicate means having the same subscript differ significantly at \( p > .05 \). GLS/ILC, group sessions combined with individual-level counseling; ILC, individual-level counseling only.

The research questions dealt with whether or not the intervention had any impact on participants’ normative perceptions. In particular, we were interested in whether or not participants in the GLS/ILC group would change the relative importance of various referent groups following the intervention (RQ1). The data indicate that, for both the ILC and the GLS/ILC groups, ratings of the importance of the PLWH/A community as a referent group increased from pretest to posttest, but the difference was not statistically significant for either the ILC, \( t(37) = 1.44, p = .15, r = .31 \), or the GLS/ILC, \( t(14) = 1.86, p = .07, r = .24 \), groups. Participants in both groups increased the relative importance of their families for their decision making around living with HIV from pretest to posttest. This difference was significant both for members of the ILC group, \( t(40) = 2.74, p = .01, r = .46 \), and for members of the GLS/ILC group, \( t(15) = 2.44, p = .03, r = .17 \). Other differences are reported in Table 5. In terms of the research question about normative

<table>
<thead>
<tr>
<th>TABLE 5</th>
<th>Importance of Referent Group Members at Pre- and Posttest</th>
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<tbody>
<tr>
<td></td>
<td>GLS/ILC</td>
</tr>
<tr>
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<td>n (M (SD))</td>
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</tbody>
</table>

Pretest friends
- Pretest | 17 | 4.29 (2.39) | 41 | 4.73 (2.18) |
- Posttest | 17 | 4.83 (2.32) | 41 | 5.12 (2.01) |
- Posttest family | 16 | 3.69 (2.55)a | 41 | 4.85 (2.24)a |
- Posttest PLWH/A community | 16 | 5.44 (1.82)a | 41 | 5.75 (1.74)a |

Posttest PLWH/A community
- Pretest | 15 | 4.13 (2.47) | 38 | 3.94 (2.27) |
- Posttest | 15 | 5.47 (2.00) | 38 | 4.52 (1.88) |
- Posttest others | 4 | 4.00 (3.46) | 8 | 4.22 (2.80) |
- Posttest others | 4 | 3.25 (2.87) | 8 | 5.00 (2.56) |

Note. T-tests indicate means having the same subscript differ significantly at \( p > .05 \). GLS/ILC, group sessions combined with individual-level counseling; ILC, individual-level counseling only.
beliefs, participants in the two conditions did not differ significantly at pretest for friends, $t(63) = .39, p = .69$; family, $t(61) = .53, p = .60$; or the PLWH/A community, $t(64) = 1.39, p = .16$. Participation in either the ILC or the GLS/ILC did not change participants’ perceptions of the normative beliefs and the two groups did not differ in terms of normative beliefs for friends, $t(67) = .27, p = .79$; family members, $t(64) = .67, p = .52$; or members of the PLWH/A community, $t(68) = .85, p = .29$.

**DISCUSSION**

The purpose of this study was to examine the effectiveness of a theoretically based intervention that combined group- and individual-level risk-reduction counseling on HIV-related knowledge, risk-communication behaviors, and normative perceptions, relative to an individual-level counseling intervention so as to test novel intervention content against the existing standard of care. For HIV knowledge, the data indicate a small increase in knowledge across groups. The data were not consistent with H1, which predicted that the GLS/ILC intervention would have a greater impact on knowledge than ILC only. One explanation for the limited changes in knowledge is the lack of variance in responses to the knowledge items. Knowledge was high across both groups at pretest; thus there was little room for improvement for either group. This is an encouraging finding indicating that the HIV-positive MSM in our sample had a substantial understanding of transmission risk factors and other factors relative to living with HIV/AIDS. This finding also highlights the importance of tailoring interventions based on analysis of the target audience; knowledge-based HIV interventions may not be appropriate for all populations despite the fact that they remain popular in practice.

The findings for HIV transmission risk communication behaviors indicate that the data were consistent with several of the predicted differences between the GLS/ILC and ILC groups; particularly immediately postintervention. In particular, with their main partners, participants in the GLS/ILC groups were more likely to avoid sex if they were drunk or high, to ask their partner’s HIV status, and to tell their partner their HIV status than were those in the ILC-only sessions. Similarly, the scores on the risk index at posttest indicated that for main partners, participants in the GLS/ILC condition took more risk-reduction steps than those in the ILC sessions. Differences for other sex partners were not significant. These findings, when taken together, indicate that the GLS/ILC combined intervention was generally more successful in increasing risk reduction with main partners than was the ILC-only intervention. Further, neither intervention was particularly successful in modifying risk behaviors for men who are having sex with people other than their main partners, although participants in the ILC intervention exhibited an improvement in risk-reduction behaviors for friends, $t(67) = .27, p = .79$; family members, $t(64) = .67, p = .52$; or members of the PLWH/A community, $t(68) = .85, p = .29$.

scores from pretest to posttest. For the MSM population, the promotion of risk-reduction behaviors with partners outside of a primary partner is a challenging task; our own research indicates that these partners are often anonymous (Lapinski et al., 2002), making negotiation of risk reduction more challenging. Interventions targeting interpersonal skills for risk reduction with anonymous partners might be a promising direction for additional research in this area.

The fact that most MSM-H/A in this sample have in the past and continue to engage in multiple transmission-risk behaviors is critical for practitioners to consider when creating prevention interventions. In many health communication interventions, particularly large-scale campaigns, there is a focus on messages targeting single behavioral responses known to be highly effective for reducing the likelihood of transmission (e.g., “abstain from sex” and “wear condoms”). In this intervention a range of options for reducing the risk of transmitting HIV to others was covered. These data suggest that when designing interventions for PLWH/A, health educators can target multiple risk-reduction steps that are easier for people to enact, even though these actions do not, in and of themselves, prevent transmission of HIV (i.e., harm reduction). That is, based on what is known about HIV transmission risk, it appears to be beneficial for interventions to help people to take action to reduce—as opposed to eliminate—risk. Thinking about risk reduction behaviors in this sort of hierarchy makes creating and evaluating interventions more complex but may allow for a more sophisticated understanding of risk reduction around HIV. This approach is consistent with the client-centered counseling model advocated by the CDC (Kamb et al., 1998). We have simply extended the utility of this model to be inclusive of group-level interventions.

The findings for normative perceptions indicate that after the intervention, members from both the ILC and the GLS/ILC groups placed a greater importance on the opinions of their family members than they had prior to the intervention. This is an interesting and potentially powerful shift. The needs assessment data that drove the design of this intervention (Lapinski et al., 2002) indicated that PLWH/A were in need of help with strategies for disclosing their status to friends and family members and that most reported having few family members with whom they could discuss issues related to their HIV status. It may be the case that because this intervention facilitated discussion with family about HIV status, family members’ influence on decision making was elevated. This opens the potential for supportive communication from family members; which is believed to facilitate risk reduction and management of uncertainty related to living with HIV or AIDS (Brashers, 2001; Brashers et al., 2004).

There was not a similar change in the importance placed on friends or members of the PLWH/A community, although the GLS/ILC participants did place a stronger
expected these changes to occur due to our belief that for members of either the ILC or the GLS/ILC group. We any substantial way during the course of the intervention. Of importance, however, there is little evidence that this translated into modification of partici-
pants’ normative perceptions. That is, there was no evidence that perceptions of normative beliefs shifted in any substantial way during the course of the intervention for members of either the ILC or the GLS/ILC group. We expected these changes to occur due to our belief that taking part in the intervention would cause people to learn more about referent others’ feelings about the target’s behaviors, thus creating a belief shift; this shift was not evidenced in these data.

Overall, these data suggest several things. First, that the POP curriculum was modestly successful in promoting short-term-enactment of reported risk-reduction behaviors, particularly for participants with their main sex partners. Of importance, we tested an enhanced intervention versus the existing standard of care. These findings add credence to the already mounting evidence that interventions based on behavioral theory are effective in reducing risk behaviors. These findings suggest that for main partners, group sessions paired with individual-level sessions are even more effective than individual-level sessions alone. Although the POP curriculum is effective in promoting risk-reduction behaviors, the POP curriculum is no more effective than the three ILC sessions in affecting knowl-
edge or normative beliefs. Finally, both interventions seem to have some impact on the extent to which participants view their family members as an important referent. Given the importance of referent others as exogenous factors in theories of behavior change such as the TRA, the findings of this study have some theoretical application as well as practical.

Although many measures were taken to increase the internal and external validity of this study, there are a number of important limitations that should be considered. The primary of these is the fact that the small sample size makes significance testing problematic; therefore, the means and standard deviations are reported to allow readers to examine these data closely rather than relying on the heuristic of the significance test. Recruitment of participants from this particular population for an intensive intervention such as we have reported here was challenging; every effort was made to retain participants, and the number of participants in each condition remained fairly stable throughout the course of the study, although attrition occurred from pretest to the second posttest, resulting in decreased power that might account for the limited findings for the second posttest.

The sample size was maintained by providing incentives to participants, a factor that may compromise the replicability of the intervention; however, trials of interventions typically involve providing incentives for participation. The use of incentives may also serve to motivate or attenuate behavior change; therefore, when the intervention is replicated without the same incentive structure (which is often the case when HIV-prevention community-based organizations implement interventions), the findings may or may not be similar to those in the trials. Additional research should examine the role of incentive structures in behavior-change interventions.

Every effort was made to ensure that the internal validity of this study was relatively strong and to control for threats such as mortality, maturation, and others. But, as with any field experiment, the researchers were unable to control every aspect of the intervention implementation, and claims about internal validity should be made with caveats. Of importance, this research should be extended by examining the replicability of the POP interventions with the MSM population and other HIV-positive risk populations. Certainly, for risk populations other than MSM, this would involve modification of the curriculum, but it would be a valuable contribution to the research on primary prevention interventions for PLWH/A. For example, a small percentage of our sample reported as bisexual. Although the small sample size in this study precluded testing the effects of the POP intervention with this group, addressing the prevention needs of bisexual PLWH/A may merit additional attention. Furthermore, future studies could examine biological markers such as sexually transmitted diseases (STD) incidence and the influence of likely psychosocial moderators of the effects of the curriculum, such as mental health or substance use.

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REFERENCES


