A Meta-Intervention to Increase Completion of an HIV-Prevention Intervention: Results From a Randomized Controlled Trial in the State of Florida

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Objective: A randomized control trial with 722 eligible clients from a health department in the State of Florida was conducted to identify a simple, effective meta-intervention to increase completion of an HIV-prevention counseling program. *Method:* The overall design involved 2 factors representing an empowering and instrumental message, as well as an additional factor indicating presence or absence of expectations about the counseling. Completion of the 3-session counseling was determined by recording attendance. *Results:* A logistic regression analysis with the 3 factors of empowering message, instrumental message, and presence of mediator measures, as well as all interactions, revealed significant interactions between instrumental and empowering messages and between instrumental messages and presence of mediator measures. Results indicated that (a) the instrumental message alone produced most completion than any other message, and (b) when mediators were not measured, including the instrumental message led to greater completion. *Conclusions:* The overall gains in completion as a result of the instrumental message were 16%, implying success in the intended facilitation of counseling completion. The measures of mediators did not detect any experimental effects, probably because the effects were happening without much conscious awareness.

What is the public health significance of this article?

This study shows that presenting a video that connects HIV-prevention counseling with outcomes and services that are important to clients (e.g., access to information about jobs, access to unrelated health services, opportunities to discuss emotional concerns) at the end of the first session increases completion of a 3-session counseling program. Treatment completion enhances outcomes in many domains, including HIV prevention.

Keywords: health promotion, HIV, intervention, persuasion, randomized controlled trial, retention

Retention and completion are critical components of the effectiveness of HIV-prevention interventions in real-world conditions and have established psychological determinants, such as attitudes and intentions (Albarracín, Durantini, Earl, Gunnoe, & Leeper, 2008; Noguchi, Albarracín, Durantini, & Glasman, 2007). Increasing retention is vital for public health because multisession behavioral interventions to reduce HIV risk are often more efficacious than single-session ones (Albarracín et al., 2005; Crepaz et al., 2014; Johnson et al., 2009; Meader et al., 2013). For example, the positive behavior change elicited by HIV-prevention interventions for clients of STI clinics is d = 0.33 for multisession programs, but only d = 0.06 for single-session programs (analyses of the data from Albarracín et al., 2005). However, when tested under conditions similar to the ones that are likely during actual implementation (e.g., lack of payments or other incentives), these multisession interventions show relatively low retention (Noguchi et al., 2007). Specifically, with the exception of interventions with captive audiences (e.g., prisons, inpatients), which show 100% completion rates, experimental interventions show a rate of completion of approximately 50% for participants initially enrolled (Branson, Peterman, Cannon, Ransom, & Zaidi, 1998; McMahon, Malow,

This article was published Online First October 27, 2016.

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Jennings, & Gómez, 2001). Without high retention, HIVprevention interventions have less of an impact on behavior and clinical outcomes. Estimated associations for behavior change show that interventions with less than 50% retention rates produce a long-term *decrease* in HIV-safe behavior (d = -0.29), compared with an increase in HIV-safe behavior (d = 0.41) for those with 100% retention rates (Johnson et al., 2009). The present research examined the efficacy of two simple, postsession, messages to increase retention in a three-session risk-reduction counseling program. These messages were designed to either empower clients as agents responsible for their own change or highlight the instrumental outcomes of the intervention in terms of participants' lives (e.g., addressing health concerns other than HIV, offering employment related information). The experimental design included five conditions, namely each of these messages, a combination of both, as well as two control conditions. The outcome variable was completion of a three-session counseling program.

Ensuring Retention in HIV-Prevention Programs

Variability in Exposure to Behavioral Intentions

A number of interventions have been produced to change behaviors that place people at risk for HIV (Albarracín et al., 2005; Centers for Diseases Control and Prevention [CDC], 2007; Lorimer et al., 2013). These interventions are typically tested under conditions that ensure the validity of the outcome assessments (Cook & Campbell, 1979). Thus, researchers try to involve community members to see if a particular intervention works for them. Social networks are called upon to recruit these participants and numerous incentives and facilitators are used to ensure access to the desired sample of exposed participants, as well as low attrition (De Walque et al., 2012; Exner, Hoffman, Parikh, Leu, & Ehrhardt, 2002; Lauby et al., 1996; Linnan et al., 2002; Packel et al., 2012; Rabinowitz, 2002; Raj et al., 2001; Roffman, Picciano, Bolan, & Kalichman, 1997; Schilling & Sachs, 1993; Schweitzer, 1997; Tobias, Wood, & Drainoni, 2006). Although these procedures are necessary to determine whether a program works for an exposed population (efficacy trial), they remove the reluctance to participate when the intervention is implemented (Catania, Gibson, Chitwood, & Coates, 1990; Lauby et al., 1996; Packel et al., 2012). Contemporary research must thus address the fundamental scientific problem of variability in exposure to behavioral interventions, including completion of a program designed to elicit behavioral or medical change.

Despite the above-mentioned method of removing selection and attrition during tests of intervention efficacy, in real-world conditions, people *choose* to take part in preventive interventions (Albarracín et al., 2008; Condelli, Koch, & Fletcher, 2000; DiFranceisco et al., 1998; Hennessy, Mercier, Williams, & Arno, 2002; Noguchi et al., 2007; Rutledge, Roffman, Picciano, Kalichman, & Berghuis, 2002; Veach, Remley, Kippers, & Sorg, 2000; Wagenaar et al., 2012). Given limited time and interest, clients of health facilities can accept or refuse to take part in an HIV-prevention counseling session (Albarracín et al., 2008; Grady, Kegeles, Lund, Wolk, & Farber, 1983; Katz et al., 2015; Noguchi et al., 2007; Minder, Müller, Gillmann, Beck, & Stuck, 2002; Wilson & Albarracín, 2015). Moreover, some of the audiences most vulnerable to HIV are the least likely to complete HIV-prevention interventions (Earl et al., 2009; Liu et al., 2014; Noguchi et al., 2007; Wilson & Albarracín, 2015; Yancey, Ortega, & Kumanyika, 2006). In particular, frequent condom users are more likely to complete pro-condom-use interventions than infrequent ones (Earl et al., 2009; Noguchi et al., 2007). Thus, efficacious interventions may not reach the vulnerable audiences in need of interventions.

Given that interventions need to fully reach vulnerable audiences, not just willing ones, it is imperative to develop and test procedures that increase participation by these populations (Albarracín et al., 2008; Wilson & Albarracín, 2015). Procedures can be designed to change an audience's behavior with respect to the preventive interventions themselves, including enrollment and retention. These procedures, termed meta-interventions, entail a standardized introduction or context change (e.g., delivery setting) intended to increase exposure to a behavioral intervention (Albarracín et al., 2008; Albarracín, Leeper, Earl, & Durantini, 2008; Wilson, Durantini, Albarracín, Crause, & Albarracín, 2013). In past research, participants with prior infrequent condom use were offered an HIV-counseling session using one of four scripted introductions to the program (Albarracín et al., 2008). A randomly assigned meta-intervention conveying that counseling participants are free not to change (empowering video) was more effective than other introductions (one promising change and another providing basic information about the counseling) or no introduction (just an offer to take part). Unobtrusive observers recorded the extent to which participants agreed to the counseling when asked, and also collected supplementary data on participants' reading of brochures and viewing of videos. As hypothesized, the empowering metaintervention produced high levels of enrollment in the counseling (Albarracín et al., 2008). In addition, viewing the video had an independent effect on enrollment, such that viewers of the video were more likely to enroll in counseling than nonviewers (Albarracín et al., 2008).

Selective Exposure to Interventions

Retention in HIV-prevention interventions can be understood as a form of selective exposure to information (Albarracín & Mitchell, 2004; Earl & Nisson, 2015; Noguchi et al., 2007). Selective exposure comprises biased information seeking behavior and was first studied by Festinger (1964; for reviews see Eagly & Chaiken, 1993; Freedman & Sears, 1965; Frey, 1986). Exposure to an intervention (in this case, staying in and completing a program) depends on two sets of motivations (i.e., goals or desired endstates; Lewin, 1926; see also Atkinson, 1964; McClelland, 1951; Nuttin, 1980; for other classifications of human motives, see Chaiken, Wood & Eagly, 1996; Eagly, 2007; Johnson & Eagly, 1989; Noguchi et al., 2007; Prislin & Wood, 2005; Wyer & Albarracín, 2005). On the one hand, individuals are motivated to achieve subjective self-validation, which comprises the defense of prior beliefs and practices in the domain of HIV prevention (Albarracín & Mitchell, 2004; Albarracín et al., 2008; Noguchi et al., 2007; see also Kunda, 1990; Molden & Higgins, 2005). On the other hand, individuals are motivated to maximize objective outcomes, such as reducing their risk for HIV and achieving other personal and emotional outcomes (Hart et al., 2009; Noguchi et al., 2007; Vanable et al., 2012).

A primary human motive is to achieve self-validation (Chaiken, Wood & Eagly, 1996; Eagly, 2007; Johnson & Eagly, 1989; Prislin & Wood, 2005; Wyer & Albarracín, 2005), and interventions may or may not fulfill it (Albarracín et al., 2008; Noguchi et al., 2007). Presumably due to the self-validation motive, individuals who engage in high-risk behavior are reluctant to enroll and stay in HIV-prevention interventions (Albarracín et al., 2008; Earl et al., 2009; Noguchi et al., 2007; Wilson & Albarracín, 2015).

Considering this, it is possible to design empowering messages to decrease defensiveness when recipients encounter a potential intervention that urges novel or even rejected practices (e.g., using condoms for nonusers; Albarracín et al., 2008). For example, past research has found an advantage in telling participants that change is up to them, that an intervention will simply open doors, and that they may or may not change if they participate. This type of meta-intervention puts recipients in a more active role by placing the burden of change upon them, while indirectly encouraging them to actively seek change (Amaro, 1995; Amaro & Raj, 2000; Albarracín et al., 2008; Freire, 1972; Higa, Marks, Crepaz, Liau, & Lyles, 2012; Putnam, 1911). Further, people are more likely to expose themselves to persuasive communications if they believe that they can resist their influence (Albarracín & Mitchell, 2004; Brehm, 1972; Brehm & Cohen, 1962; Watzlawick, 1978). For example, as infrequent condom users often do not want to use condoms (Albarracín, Johnson, Fishbein, & Muellerleile, 2001), highlighting the option of resistance increases their exposure to condom-use interventions (Albarracín et al., 2008). These processes have been investigated to improve enrollment in HIV programs (Albarracín et al., 2008), but not to achieve completion. As the dynamic of enrollment is similar to retention (Noguchi et al., 2007), similar messages may also increase retention in an HIVprevention counseling program.

Besides self-validation, an important human motive is to maximize objective outcomes (Hart et al., 2009; Noguchi et al., 2007). Retention in an intervention is therefore likely to depend on the degree to which the intervention fulfills this motive (Albarracín et al., 2008; Earl et al., 2009; Noguchi et al., 2007; Vanable et al., 2012). For HIV-risk reduction interventions, objective outcomes include HIV-risk reduction (Floyd, Prentice-Dunn, & Rogers, 2000; Rosenstock, Strecher, & Becker, 1994), but also emotional and instrumental support (Durantini & Albarracín, 2009; Vanable et al., 2012). For people who engage in high-risk behavior, the risk-reduction outcome can conflict with the selfvalidation motive (Albarracín et al., 2008; Earl et al., 2009; Noguchi et al., 2007). Thus, emphasizing that the objective of an intervention is to change participants' risk behavior can lead participants to reject the intervention and feel manipulated (Albarracín et al., 2008). In contrast, emphasizing the emotional, social and instrumental value of an intervention beyond HIV prevention can entice participation (Durantini & Albarracín, 2007, 2009; Liu et al., 2014). Past research supports this assertion, showing that, women seek out programs that provide social and emotional support (i.e., company, encouragement, and affection), whereas men seek out programs that provide instrumental support (i.e., health care or payments; Durantini & Albarracín, 2007, 2009). In this light, we tested the effect of messages that emphasize the emotional, instrumental, and (non-HIV related) physical health outcomes of returning to the sessions of an HIV-prevention and counseling program.

HIV Prevention in the State of Florida

At the end of 2012, an estimated 1,218,400 people in the United States were living with HIV/AIDS (Hall et al., 2015). HIV incidence has remained relatively stable since the mid-1990s, with an estimated 50,000 persons becoming infected with HIV on any given year (Hall et al., 2008). Based on confidential-name-based HIV reports, 47,352 cases of HIV/AIDS were diagnosed in 35 U.S. areas (33 states, Guam, and the U.S. Virgin Islands) in 2013. Up to 2012, the cumulative number of individuals dead by HIV was 658,507, with Florida having one of the highest HIV disease death rates in the U.S. (Florida Department of Health [FDH], 2012). Also, in 2013, Florida ranked first in new infections per year (5,377 new infections) and second in number of cumulative reported HIV cases (49,058; CDC, 2013). In 2014, the largest estimated proportion of HIV/AIDS diagnoses in Florida was for men who have sex with men (MSM), and ethnic minority adults and adolescents infected through heterosexual contact (FDH, 2015). Clearly, protecting Floridians is a national health priority, particularly those from African American backgrounds, who are highly represented in our population.

In Florida, prevention is the most important tool to avoid an even more accelerated epidemic (FDH, 2007). Duval County (Electoral district 4) is an important area that has received relatively little research attention (compared with Dade County, e.g.). Considering sheer number of cases in 2014, Duval County, which includes Jacksonville, ranks 1st for Gonorrhea and 4th for Chlamydia (FDH, 2014a), and 4th for HIV (FDH, 2014b). Of 67 counties in the state of Florida, these rankings place the region at very high risk. Given these findings, ensuring intervention effectiveness for this population is key.

The Present Research

A randomized control trial was used to test the impact of video meta-interventions designed to either empower clients or remind them of the various objective goals fulfilled by the HIV-counseling program, and to compare these videos with control videos. The empowering meta-intervention entailed presenting the recipient as the motor of the behavior change (Albarracín et al., 2008). This strategy emphasized that the program could not change behavior unless the individual wanted it to. The instrumental video included descriptions of the sort of information and referrals the counselor could provide, in addition to giving information and guidance about HIV prevention. There was also a condition that combined the empowering and instrumental messages, as well as two control conditions. One control included stories about people living with HIV that were used in all experimental videos. The other control was more minimal, and simply presented educational information on reducing STIs. Thus, the design comprised five conditions to analyze their impact on completion of a CDC-recommended, three-session counseling program.

Our design also included a factor signaling whether perceptions of the video were measured. Although it was important to attempt to measure whether the videos induced expectations of empowerment and instrumental outcomes, including such blunt measures often alters the outcomes of experimental designs (Dholakia & Morwitz, 2002; Morwitz, Johnson, & Schmittlein, 1993). As a compromise, we randomized whether these measures appeared, and so only half of the sample completed these measures immediately after watching the meta-intervention video.

Method

Enrollment

Clients from the STI clinics from the Florida Department of Health in Duval County were recruited (via flyers, referrals) for a study testing a three-session counseling program. To be eligible, individuals had to be between 18 and 35 years of age, report engaging in sexual activity in the past three months, and report using condoms never or occasionally. Participants were excluded if they were HIV-positive, or were trying to get pregnant or had a partner who was trying to get pregnant. Eligible participants were scheduled for their first study appointment. To ensure initial enrollment, participants were paid \$35 for attending the first session, and \$15 for subsequent sessions. The study was approved by the Institutional Review Boards (IRBs) of the University of Illinois, University of Pennsylvania, and Florida Department of Health, and each participant provided informed consent. Figure 1 describes all exclusions and Ns resulting from assignment procedures. The maximal control was by design smaller than the other conditions, including the minimal control. The trial was preregistered in clinicaltrials.gov (NCT01152281).

Participants

Seven hundred twenty-two eligible participants (58% female) attended the initial counseling session, with a retention rate of 76% for the second session and a completion rate of 63% at the third session. The mean age of the sample was 26.54 (SD = 4.78). The majority of participants were African American (79%), and generally had an income under \$9,999 per year (58%). Eighty-five percent reported having a main partner with whom they had a relationship on average of 2.37 years (SD = 2.10). Condom use in this sample was low, with only 1.1% reporting *always* using a

condom when they had sex with their main partner. A full description of the same appears in Table 1.

The Counseling Intervention

The model of counseling that was used entailed a clientcentered, cost-effective HIV-prevention program (CDC, 1993, 2007; Holtgrave, Valdiserri, Gerber, & Hinman, 1993; Kamb et al., 1998) facilitated by a counselor. This model's efficacy has been demonstrated to significantly reduce STIs in a large multisite study (Kamb et al., 1998) and continues to be recommended as a standard for one-on-one counseling (CDC, 2007). The counseling seeks to reduce HIV risk behaviors by giving information, identifying risk behaviors, as well as steps to change them, and developing behavioral skills enabling safer behavior. This counseling can involve one or more sessions lasting at least 20 min, all of them following the same format. In our proposed study, a threesession model was used.

During the first session, participants received information regarding HIV transmission and prevention tailored to their culture, language, sex, gender, age, and educational level. The counselor ensured that the participant understood the information and that all of their misconceptions were corrected. The participant was encouraged to ask questions and clear their doubts. Following the informative part of the session, the counselor performed a personalized risk assessment, encouraging the participant to identify, understand, and acknowledge the behaviors and circumstances that put them at risk for being infected by HIV. Addressed topics included factors associated with risk behavior, such as using drugs or alcohol before sex, underestimating personal risk, having low self-efficacy, having distorted or fatalistic beliefs, and misperceiving peer norms. In addition, the counselor examined previous attempts made by the participant to reduce their risk and identified the reasons for their success or failure in these situations. This in-depth exploration allowed the counselor to help the participant consider ways to reduce personal risk and commit to a single, reachable step toward change. Once this risk assessment was

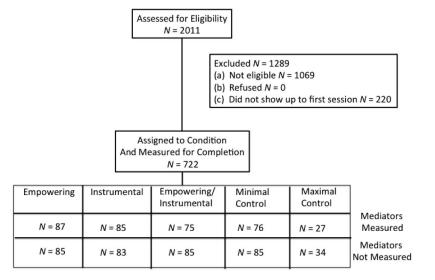


Figure 1. Recruitment and assignment.

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Table 1 Sample Description

| | | | Mee | Mediator measures included | luded | | | Mediat | Mediator measures not included | luded | |
|---|--|--|--|--|---|--|--|---|--|---|--|
| Variables | Total | Empowering | Instrumental | Empowering and instrumental | Minimal control | Maximal control | Empowering | Instrumental | Empowering and instrumental | Minimal control | Maximal control |
| Demographic characteristics Gender % | | | | | | | | | | | |
| Male | 41.7 | 42.5 | 40.0 | 29.3 | 43.4 | 51.9 | 37.6 | 45.8 | 51.8 | 38.8 | 41.2 |
| Female | 58.3 | 57.5 | 60.0 | 70.7 | 56.6 | 48.1 | 62.4 | 54.2 | 48.2 | 61.2 | 58.8 |
| Age, M (SD) years | 26.54 (4.78) | 26.95 (4.66) | 25.79 (5.20) | 27.52 ^a (5.06) | 26.92 (4.44) | 27.44 (3.87) | 26.74 (4.55) | 26.47 (4.87) | 25.08^{a} (4.46) | 26.12 (5.04) | 27.94 (4.36) |
| African American | 78.8 | 83.9 | 80.0 | 78.7 | 81.6 | 51.9 | 78.8 | 83.1 | 80.0 | 78.8 | 64.7 |
| European American | 15.7 | 9.2 | 10.6 | 16.0 | 14.5 | 33.3 | 15.3 | 13.3 | 16.5 | 17.6 | 32.4 |
| Other | 5.3 ^b | 6.9 | 9.4 | 5.3 | 3.9 | 11.1 ^b | 5.9 | 3.6 | 3.6° | 3.5° | 9p |
| Income % | | | | | | | | | | | |
| \$9,999 or less | 58.4 | 59.8 | 61.2 | 66.7 | 59.2 | 48.1 | 60.0 | 55.4 | 56.5 | 58.8 | 44.1 |
| \$10,000 or more | 39.2^{a} | $37.8^{\rm b}$ | $35.4^{\rm b}$ | 33.4° | 40.8 | $48.1^{\rm b}$ | $36.5^{\rm b}$ | 43.3 ^b | 41.3^{b} | $38.9^{\rm b}$ | $47^{\rm b}$ |
| Years of education, M (SD) | 11.77 (1.71) | 11.76 (1.67) | 11.67 (1.60) | 12.27 (1.54) | 11.65 (1.61) | 11.74 (1.48) | 11.86 (2.20) | 12.05 (1.74) | 11.41 (1.63) | 11.63 (1.81) | 11.53 (1.05) |
| History of sexual activity and alcohol and drug use | | | | | | | | | | | |
| Has a main partner | 84.6 | 88.5 | 89.4 | 73.3 | 86.8 | 85.2 | 84.7 | 81.9 | 82.4 | 88.2 | 85.3 |
| CONDOIN USE 70 | | ¢ | c | ¢ | • | ¢ | 1 | ¢ | | | 0 |
| Main partner | 1.1 | 0 | 0 | 0 | 1.3 | 0 | 3.5 | 0 | 1.2 | 1.2 | 5.9 |
| Other partner | 11.2 | 13.8 | 11.8 | 9.3 | 9.2 | 11.1 | 16.5 | 6.0 | 14.1 | 11.8 | 2.9 |
| Intention to use condoms % | | | | | | | | | | | |
| Main partner | 10.1 | 8.0 | 11.8 | 9.3 | 5.3 | 22.2 | 12.9 | 10.8 | 8.2 | 9.4 | 11.8 |
| Other partner | 22.2 | 26.4 | 17.6 | 21.3 | 21.1 | 18.5 | 34.1 | 19.3 | 23.5 | 20.0 | 8.8 |
| Number of sexual partners $M(SD)$ | 3.94 (6.17) | 3.59 (4.25) | 2.99 (4.47) | 4.20 (4.81) | 3.67 (4.99) | 2.41 (2.41) | 5.49 (11.16) | 3.76 (4.83) | 5.21 (8.38) | 3.35 (3.64) | 3.35(4.68) |
| Alcohol use, M (SD) | 4.66 (6.29) | 5.16 (6.91) | 3.76 (4.24) | 5.63 (9.25) | 5.32 (6.59) | 2.05 (1.43) | 4.44 (4.84) | 4.72 (6.49) | 4.55 (4.97) | 5.36 (7.63) | 2.90 (2.57) |
| Drug use, M (SD) | 6.28 (12.18) | 9.05 (14.81) | 5.59 (8.57) | 4.32 (6.43) | 10.09 (14.25) | 1.17 (2.04) | 6.05 (13.76) | 5.64 (12.67) | 3.53 (6.92) | 8.73 (19.02) | 0 |
| Injection drug use, M (SD) | 2.93 (4.83) | 0 | 0 | .67 (1.16) | 7.50 (10.61) | 0 | 1.50 (2.12) | 1 (1.41) | 0 | 0 | 0 |
| <i>Note.</i> Other races include American Indians, Asians, Native Hawaiian, or other Pacific Islanders, or more than one race. Main partner reports the percentage of participants having a main partner. Condom use reports the percentage of <i>always</i> wearing a condom. Intention to use condoms reports the percentage of having <i>very strong</i> intentions to use condoms. Number of sex partners and injection drug use were based on behaviors over the past six months, intentions to use condoms were based on behaviors for the coming six months, drug use was based on behavior over the past month, and alcohol use was based on behavior over the past work, here were too few <i>ns</i> per cell to calculate means and standard deviations. ^a Significantly different across mediator conditions, <i>p</i> = .024. ^b Values do not add up to 100 because of missing values. ^c Values do not add up to 100 because of missing values. | can Indians, A of <i>always</i> wei over the past is r over the past diator conditio | sians, Native F uring a condom ix months, inte week. For son ns, p = .024. | lawaiian, or o . Intention to u entions to use ne conditions, ^b Values do 1 | awaiian, or other Pacific Islanders, or more than one race. Intention to use condoms reports the percentage of having v ntions to use condoms were based on behaviors for the contex conditions, there were too few ns per cell to calculate m ^b Values do not add up to 100 because of missing values. | ders, or more t rts the percenta used on behavid ew <i>ns</i> per cell because of m | nan one race.] ge of having w urs for the com o calculate me issing values. | Main partner re <i>ery strong</i> inter ing six months cans and stands ° Values do n | ports the percentions to use contions to use control of the deviations. | Aain partner reports the percentage of participants having <i>ry strong</i> intentions to use condoms. Number of sex partne ng six months, drug use was based on behavior over the <i>t</i> ans and standard deviations. | ants having a r of sex partners or over the pas nding error. | nain partner. and injection t month, and |

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complete, the counselor asked the participant to describe the riskreduction step to be attempted (while acknowledging positive steps made), and helped the participant identify and commit to additional behavioral steps. Testing was also discussed, with referrals provided as needed.

During the following sessions, the counselor and the participant explored the success or failure of the steps proposed, and adjusted goals to the participant's achievements. Furthermore, the second and third sessions also included a module for providing emotional support and addressing instrumental and/or medical concerns, in addition to HIV. This inclusion fulfilled the goal of providing supporting objective outcomes highlighted in some of the metaintervention conditions. Among other things, after the HIV-risk reduction portion of the second and third counseling session was complete, the counselor discussed the physical and psychological symptoms, made referrals and provided information. This modification allowed us to test the effectiveness of messages that emphasized emotional and physical outcomes, with the counseling providing some venue for relief.

The counselors had good fidelity ratings using standard observation lists, and great high on cultural competency as measured with a valid and reliable questionnaire (Ponterotto, Alexander, & Grieger, 1995; Ponterotto, Potere, & Johansen, 2002). The counselors used written guides and records to ensure the use of a standardized procedure, and were closely supervised and retrained periodically. Therefore, after initial intensive training before the trial began, a check of videotaped sessions was performed to ensure proper application of the protocol. A random sample of 38 sessions showed 100% adherence to seven key dimensions of the protocol, which included appropriate introduction to the session, adequate performance of the risk assessment, proper evaluation of personal resources into newly set goals, and a clear closure. The average duration of the sessions was 25 min.

Meta-Intervention Messages

The messages were 24- to 34-min videos presented at the end of the first counseling session, to infer effects on retention at the second and third sessions. There were five videos, one for each condition, one resulting from crossing two meta-interventions, and two control videos.

The first experimental video, lasting 28 min, presented a metaintervention conveying the message of being empowered (empowering condition). The video presented community members who talked about their experiences with HIV and counseling. This content was interspersed with messages delivered by these characters and professionals, conveying that subsequent counseling sessions were not intended to force change upon individuals. The stories were set at local places in North Florida (e.g., a fishing environment, a bar) with local music used in the background. The videos contained material in both Spanish and English, subtitled to the other language.

The second experimental video, lasting 26 min, presented a meta-intervention emphasizing the objective outcomes associated with HIV-prevention counseling (instrumental condition). This video presented the same stories as the first message. However, this experimental video also emphasized the emotional, social and objective (i.e., non-HIV/STI health) outcomes of returning to the

counseling sessions. In this message, characters and professionals described how HIV-prevention counseling was also a venue to discuss personal problems, such as violence in the home or depression, and the extent to which many clients find emotional relief and social support from participating in the counseling. This message thus conveyed how HIV-prevention counseling often facilitates the treatment of other health problems, while also providing a venue for obtaining information about, and referral to, social services.

The third experimental video, lasting approximately 34 min, combined the first and the second meta-intervention messages. The final two videos were both control videos. The first, which lasted approximately 26 min, included the same stories and locations as those presented in the other three videos, but did not contain any of the meta-intervention messages (minimal control condition). The second, lasting 24 min, contained neither stories presented by local characters, nor any meta-intervention messages, but simply presented short vignettes aimed at increasing behavioral skills, perceived risk and knowledge about reducing STIs (maximal control condition; selected from video developed by Warner et al., 2008).

The use of two control conditions let us disentangle the effects of the meta-intervention messages from the community stories about HIV and counseling. Specifically, the difference between the minimal control video and those used in the three experimental conditions was the absence of a meta-intervention message; the rest of the content (e.g., the community stories) remained the same. The maximal control did not have either, and only presented risk and facts about STIs. Thus, it became possible to see whether differences in the three experimental conditions were attributable to the combination of the meta-intervention message and stories that were included, or were exclusive to the meta-intervention message. This condition was added after the project was funded and therefore had to be smaller because of funding constraints.

Design

This study crossed two meta-interventions: (a) a video message empowering or validating the client to return to the sessions, and (b) a video message highlighting opportunities for emotional and instrumental support (e.g., information about cardiovascular health, referrals etc.) facilitated by HIV-prevention counseling. The design had another factor, which concerned the inclusion of measures of expectation induced by the video, which were to appear immediately following the video. Only half of the sample completed these measures with the objective of avoiding measurement sensitivity. Thus, our design was a 2 (empowering metaintervention: present vs. absent) \times 2 (instrumental meta-intervention: present vs. absent) \times 2 (measurement of mediators: present or absent) between-subjects factorial with the addition of a minimal control condition.

Baseline Measures

Data was collected using audio computer-assisted self-interview (ACASI) procedures. With this technique, participants listened to the question, while simultaneously reading them on the screen. ACASI procedures have been reported to increase accuracy with respect to non-normative behaviors and responses, thus decreasing the effects of social desirability and experimental demand (see, e.g., Des Jarlais et al., 1999; Mensch, Hewett, & Erulkar, 2003; Williams et al., 2000). Questionnaires were available in Spanish for participants who preferred it.¹

Baseline questionnaires measuring past behavior, intentions, and demographics were collected from participants before the start of their first counseling session. Questionnaire items were first transformed to a *z*-score, and then averaged, to produce a composite measure of condom, drug, alcohol and injection drug use, as well as a composite measure for number of sexual partners and intentions to use condoms.

Condom use and unprotected sex. Participants were asked about their condom use during intercourse in (a) the past month, (b) the past three months and (c) the past six months, as well as (d) how often they use condoms in general, (e) how many times they engaged in unprotected sex in the past six months, and (f) whether they used a condom the last time they had intercourse. These questions were asked in reference to participants' main and other partner(s), and had acceptable internal consistency ($\alpha = .69$ for main partner, and $\alpha = .63$ for other partner).

Number of sexual partners. Participants were asked about the number of sexual partners they had in (a) the past 48 hours, (b) the past month, and (c) the past six months. This measure (National Institute of Drug Abuse [NIDA], 1991, 1993) had good internal consistency in our sample ($\alpha = .77$; see also Edwards, Fisher, Johnson, Reynolds, & Redpath, 2007; Needle et al., 1995).

Alcohol use. Participants were asked to report their behaviors related to prior alcohol use. For those participants who reported that they drink alcohol, alcohol-use consisted of a single-item measure including reports of the number of times participants used alcohol during the past week.

Drug use. Participants were also asked to report their behaviors related to prior drug use. Drug-use measures included reports of the number of times participants used drugs (in general, as well as heroin, crack, and cocaine) during (a) the past 48 hours and (b) the past month. This measure had poor internal consistency in our sample ($\alpha = .52$).

Injection drug use. Injection drug use was differentiated from the broader measure of drug use, as the level of HIV risk conferred by intravenous drug users is higher. Participants were asked (a) the number of times they injected drugs, (b) the frequency of sharing syringes, (c) the number of sharing partners, and (d) the number of times the equipment was sterilized between uses over a period of the past 48 hours, past month, and past six months. These questions were validated against HIV infection rates by Anthony et al. (1991), and had good internal consistency in our study ($\alpha = .85$).

Intentions to use condoms. Participants were also asked about their intentions to use condoms, using previously validated measures (Albarracín et al., 2000; Earl et al., 2009; Kamb et al., 1998). Specifically, participants were asked how likely it was for them to use a condom with their partner (a) the next time they had intercourse, (b) every time for the next three months they had intercourse, and (c) every time for the next six months they had intercourse. Participants were also asked about (d) the strength of their intentions and (e) their motivation to use condoms with their partner in the next six months. These questions were asked in reference to participants' main and other partner(s), and had excellent internal consistency ($\alpha = .94$ for main partner, and $\alpha = .96$ for other partner). In addition to the above measures, participants were also asked standard items from the General Social Survey (http://gss.norc.org/) to assess structural variables, namely household income, level of education, race/ethnicity, and employment.

Measures of Video Acceptability, Counseling Expectations, and Return Intentions

The design included measures of the acceptability of the video, expectations of the following counseling sessions, and intentions to return. Measures were completed after the presentation of the video, by only half of the participants. Items for each measure were first transformed to a *z*-score, and then averaged, to create a composite measure for video acceptability, counseling expectations and return intentions.

To gauge video acceptability, participants were asked whether the video presented was (a) interesting, (b) useful, (c) enjoyable, (d) clear, and (e) relevant, as well as whether the video (f) made participants think, (g) taught them about condom use, and (h) presented new information. Participants were also asked whether the video made them (i) nervous, (j) worry, (k) feel compelled to do something they did not want to do, and (l) feel forced to change their beliefs or behaviors. Items (i) to (l) were first reverse scored, and then averaged with items (a) to (h). These measures had high internal consistency ($\alpha = .80$).

Participants were also given measures of expectations about the counseling. Specifically, we asked participants whether they thought that the counseling would (a) force or (b) compel them to do things they did not like, (c) make them do things to please the counselor, (d) increase HIV safe behavior, (e) help them discuss health problems besides HIV and STIs, and (f) help them with their emotional concerns. Items (a) through (c) addressed empowerment expectations ($\alpha = .65$), and items (d) through (f) addressed instrumental outcomes ($\alpha = .76$).

Finally, participants were asked about the (a) strength of their return intentions and (b) how much they would enjoy returning ($\alpha = .67$). All these measures were included as potential process data.

Completion Measure

Retention was observed during the last two sessions. When participants started the first session, the counselor indicated that the complete counseling program included two additional follow-up sessions. We measured retention by taking into account whether the participant completed all three sessions.

Results

Across the board, there was a high completion rate of 63%, which is probably attributable to the use of payments for attendance at the return sessions. Before analyzing the outcome of the meta-intervention, we compared the demographic and behavioral profile of our sample. Any incidental difference was then controlled for in the main analysis.

¹ Only one participant asked for the Spanish version of the measures.

Comparability Across Conditions

Although random assignment was intended to ensure comparability across conditions, we performed periodic checks to make sure there were no gender, age or race biases in the participant distribution. Table 1 provides a summary of relevant sample characteristics, by overall sample, as well as broken down by condition. One-way ANOVAs and chi-square tests revealed no significant difference in these variables across our five conditions (ps >.077), with the exception of age and race. Variability in race across conditions approached significance, $\chi(18) = 28.71$, p = .052. There was a significant difference in the age of participants across conditions, F(9, 712) = 2.15, p = .024. A Tukey post hoc test revealed that participants' age was significantly lower in the combined instrumental and empowering meta-intervention condition, when no measures of return expectations and intentions were included (M = 25.08, SD = 4.46), compared with the same condition presented when those variables were measured (M =27.52, SD = 5.06). There were no significant differences in age across the other conditions (ps > .089).

Effects on Video Acceptability, Counseling Expectations, and Return Intentions

A multivariate analysis of variance, with our five metaintervention message conditions as a factor, was conducted to analyze the impact of our experimental factors on video acceptability, counseling expectations (either empowering or instrumental) and the intention to return to counseling. Results revealed no significant effect of meta-intervention message (p = .14), indicating that our experimental factor did not affect participants' reported acceptability of the video, empowering or instrumental expectations of counseling, or their intentions to return to the next counseling session. These findings suggest that any effect of the video either occurred outside of awareness, or could not be clearly reported by our participants on the scales that we developed. Means and standard deviations for video acceptability, counseling expectations and return intentions are presented in Table 2. The means in all cases were above the midpoints of the scales and suggest favorable perceptions of the video and a program perceived to be acceptable.

Main Experimental Results

A logistic regression analysis with our three factors of empowering message, instrumental message, and mediator measurement presence, as well as all interactions, was conducted to analyze the impact of our experimental factors on counseling completion. In this analysis, the two control conditions were combined but a separate consideration of these two conditions does not alter our results. The analyses entailed a forward removal of predictors. The results from this analysis appear in Table 3. Results revealed a significant two-way interaction between the presentation of instrumental and empowering messages, as well as a significant interaction between mediator measure presence and presentation of instrumental messages (see Figure 2). Results indicated that the instrumental message alone was better than any of the other messages. Furthermore, the instrumental message was more effective than the empowering message in the absence of measures of mediating expectations. The overall gains in completion as a result of the instrumental message were 16%, suggesting success in the intended facilitation of counseling completion.

Discussion

This paper reported a large and complex randomized controlled trial testing meta-interventions to increase completion of a CDCrecommended counseling for HIV prevention. Our results identified a successful program-one that incorporates the counseling within a broader spectrum of goals that are likely salient to the clients of most programs to prevent, test for, and treat HIV. This finding is particularly impressive given that the completion rates in the sample were fairly high, probably attributable to a combination of excellent counseling technique and highly effective counselors, in addition to the use of payments for follow-up sessions. In other words, the room for improvement may have been limited to begin with, or at least, limited relative to the usually lower completion rates in the average comparable HIV-prevention trial (see Albarracín et al., 2005). Also, although the use of payments seemed desirable given pilot data showing lower completion than that ultimately obtained, hindsight suggests that the payments might have reduced the sensitivity of our completion measure.

The instrumental meta-intervention seemed important to test as it involves a *patient centered approach* to interventions (Lauver et

Table 2

Means and Standard Deviations for Video Acceptability, Counseling Expectations, and Return Intentions Presented Across Meta-Intervention Message Conditions

| | Empov | vering | Instrur | nental | Empowe instru | ering and mental | Mini cont | | Maxi cont | |
|---|-------|--------|---------|--------|------------------|------------------|--------------|-----|--------------|-----|
| Item | М | SD | М | SD | М | SD | М | SD | М | SD |
| Video acceptability ^{a,b} | 4.11 | .72 | 4.09 | .76 | 4.13 | .64 | 4.18 | .62 | 4.32 | .46 |
| Empowering expectation ^{a,b} | 3.79 | .49 | 3.78 | .62 | 3.76 | .55 | 3.75 | .50 | 3.78 | .57 |
| Instrumental expectation ^{a,b} | 3.13 | .75 | 3.09 | .87 | 3.12 | .76 | 3.20 | .78 | 3.14 | .67 |
| Intention to return ^{a,b} | 3.73 | .47 | 3.77 | .41 | 3.76 | .39 | 3.75 | .43 | 3.63 | .54 |

Note. Video acceptability was measured on a scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Empowering and instrumental expectations, as well as return intentions, were measured on a scale ranging from 1 (*not at all*) to 4 (*extremely so*).

^a Higher scores amount to greater acceptance of the video, higher empowering and instrumental expectations, and a stronger intention to return to the next counseling session. ^b There was no significant effect of meta-intervention message. The means, however, were above the midpoint of the scale, suggesting favorable perceptions.

| Table 3 |
|---|
| Final Results From Logistic Regression Analysis |

| Predicto | or | В | SE | $Wald_1$ | р | Exp(B) |
|--|-------------------------------|--------------|--------------------------|----------|-----------------|-----------------|
| Constant | | -1.57 | .45 | 11.98 | .001 | .21 |
| Empowering Meta-Intervention \times In | nstrumental Meta-Intervention | 41 | .20 | 4.07 | .044 | .66 |
| Instrumental Meta-Intervention \times Pr | resence of Mediator Measure | .47 | .21 | 5.12 | .024 | 1.60 |
| Age | | .079 | .017 | 21.93 | 0 | 1.08 |
| | | Meta | -intervention con | dition | | |
| | Empowering | Instrumental | Empowering instrument | | Minimal control | Maximal control |
| Percentage of completion | | | | | | |
| | r o | | | | | |
| Presence of mediator measure Yes | 63.2 | 62.4 | 57.3 | | 64.5 | 66.7 |

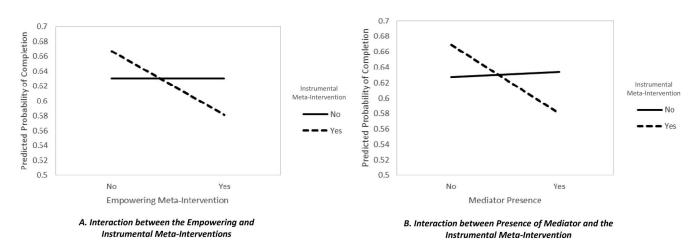
Note. Results in the top panel obtained with forward logistic regression. The bottom panel contains raw percentages of completion for each cell in our design.

al., 2002; Morgan & Yoder, 2012; Robinson, Callister, Berry, & Dearing, 2008) that is entirely consistent with psychological theories of persuasion and motivation. For a message to be well received, it is necessary for its content to be relevant to the audience and sufficiently consistent to ensure high level of message-consistent thinking and low levels of counterarguing (Albarracín, Johnson, & Zanna, 2005; Albarracín & Vargas, 2010). In the case of the instrumental message, highlighting the various personal goals that can be met through contact with the health system and associated services clearly retained participants who otherwise may have dropped out from the program. Future research should be conducted to replicate this finding in other areas, particularly HIV testing, HIV treatment, and introduction of pharmacological agents, such as PrEP.

Three aspects of our findings are noteworthy. First, the empowering meta-intervention, which had impressive results in a trial to increase acceptance of HIV-prevention counseling (Albarracín et al., 2008), did not yield improved completion. This result highlights that the determinants of enrollment and retention are different, with defensiveness playing a key role in initiation, but lack of relevance or perceived purpose probably underlying drop out. Second, the average completion rate was rather high and so our meta-intervention may have stronger effects when completion is low to begin. In our case, the high quality of the counseling and intensive training and supervision of the counselors, along with the payments, decreased the need for an intervention to ensure completion. Replications in conditions that are more conducive to higher drop out will therefore be highly informative. Third, as is common in testing behavioral interventions, the mediation analysis shed no light on the variables that led to the treatment outcome. It is of course possible that expectations did change, but participants did not have full introspective access to these contents due to the operation of relatively nonconscious processes. More likely, however, the questions were too involved and required a level of metacognition that is unfortunately not frequent for a sample with a low level of education. Perhaps a less directive assessment, such as a qualitative interview, may in the future increase understanding of the reasons underlying the success of the instrumental message.

Effects of the Mediators

The introduction of the mediators was expected to affect completion by sensitizing clients to the importance of completion. Often, calling attention to what the goals of a study are can



introduce demands effects (Barabasz & Barabasz, 1992). An interesting study on measurement effects, however, was conducted by Glasman and colleagues (2015), who found that introducing measurements of risky behavior decreased the effect of a prevention intervention, suggesting a potential underestimation of the effect of behavioral programs. Both the demand and efficacy reduction patterns are entirely consistent with what we found. The inclusion of mediator measures increased completion, while also decreasing sensitivity to the meta-intervention. It seems likely that in-depth questions elicit cognitive and motivational processes, such as self-talk, that distract recipients from fully processing messages received immediately before (Glasman et al., 2015) or after (in our study) receiving a persuasive communication.

Remaining Questions and Limitations

There are several important questions to address, including possible differences in the intervention as a function of the delivered meta-intervention. For all clients, during the second and third counseling sessions, counselors discussed the physical and psychological symptoms associated with HIV, addressed instrumental and medical concerns, and provided emotional support for the participants regardless of the condition they were randomized to. Thus, concern over the influence of a meta-intervention condition on counselors' interactions with participants is mitigated by the fact that the delivery of the counseling and the delivery of the meta-intervention messages were done by different team members. The counselor was blind to the meta-intervention condition, and so, all subsequent interactions with participants could not have been biased by knowledge of experimental condition.

With respect to generalizability to the population, we restricted the sample of participants to 18- to 35-year-olds because the estimated number of diagnoses of HIV infections in the U.S. is highest for this age range (Center for Disease Control, 2014). Additionally, prior work has shown that the mean age of participants enrolling in HIV-prevention intervention programs falls within this range (e.g., Liu et al., 2014; Wilson, Durantini, Albarracín, Crause, & Albarracín, 2013). Despite this age range restriction, we do not believe the generalizability of the studies should be affected, as the meta-interventions used target broad psychological themes, such as seeking self-validation or maximizing objective outcomes, which are not limited to specific age groups.

With respect to generalizability to the intervention format, a three-session counseling program was selected both because previous work we have done showed three-session interventions were a good length (Liu et al., 2014), and because of cost considerations. In principle, it is possible that the meta-intervention messages used in this study might have different efficacy with a longer program. However, given that completion was very high to begin, a program with lower rates of completion may show a stronger effect of the meta-interventions. Furthermore, we limited the presentation of the meta-intervention messages to participants who attended the first session as we were interested in the effect of these messages on completion of a program after it starts. Prior work we have conducted has already addressed the benefits of certain meta-intervention messages on increasing enrollment in HIV-prevention intervention programs (Albarracín et al., 2008), where it made more sense to present these messages to the entire sample at baseline.

One important consideration is the potential effect of the financial incentive to participation used in this study. As is well known, paying individuals for performing a task can reduce the perception of freedom of choice, and in turn decrease intrinsic motivation for the task (see, e.g., Festinger, 1964). In this context, payments could have led to lesser motivation to complete the program than lack of payments. This possibility seems unlikely because of the very high completion rates we obtained in our study. A likely possibility, however, is that the payment might have decreased motivation for the empowering condition, which emphasized freedom of choice. For example, emphasizing that clients are active participants and the motor of change may have reminded them of the payment and thus reduce their motivation to complete the program. Thus, future work should test the meta-intervention in the absence of payments.

It is important to further consider the effect of the metainterventions, particularly the fact that the empowering one seemed to offer no benefits. In this regard, although empowering messages have been effective at eliciting enrollment before the intervention is delivered, a retention meta-intervention of this type may be directly in conflict with the obvious behavior-change intent of the program. The preventive nature of the program is likely to be apparent from a first session in which participants are encouraged to identify, understand and acknowledge the behaviors and circumstances that put them at risk for being infected with HIV. Also, it seems possible that the video might become impractical in some contexts, particularly if it were excessively long. However, the counseling session lasted 25 min in average, which along with a 26-min instrumental video would result in a first session of 51 min of length. Thus, it seems possible to integrate this metaintervention into the regular operation of a clinic.

Although efficacious interventions are key tools in the prevention, detection, and treatment of HIV, the public health impact of these interventions are likely reduced when vulnerable populations do not complete the program. Our findings provide evidence that a meta-intervention simply describing HIV-prevention counseling as a venue where one can discuss personal problems or medical needs, and receive appropriate referrals to community resources, appears to be a promising strategy for increasing retention. The development of cost-effective tools to retain clients in multisession HIV-prevention programs could have a significant impact on the lives of those at greatest risk for HIV infection and may play a pivotal role in decreasing the number of new HIV infections in Florida, and in the Nation.

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Received November 3, 2015 Revision received May 9, 2016 Accepted July 4, 2016

Call for Nominations

The Publications and Communications (P&C) Board of the American Psychological Association has opened nominations for the editorships of *Clinician's Research Digest: Adult Populations* and *Child and Adolescent Populations; Journal of Experimental Psychology: Learning, Memory, and Cognition; Professional Psychology: Research and Practice; Psychology and Aging;* and *Psychology, Public Policy, and Law* for the years 2019 to 2024. Thomas Joiner, PhD; Robert L. Greene, PhD; Ronald T. Brown, PhD; Ulrich Mayr, PhD; and Michael E. Lamb, PhD, respectively, are the incumbent editors.

Candidates should be members of APA and should be available to start receiving manuscripts in early 2018 to prepare for issues published in 2019. Please note that the P&C Board encourages participation by members of underrepresented groups in the publication process and would particularly welcome such nominees. Self-nominations are also encouraged.

Search chairs have been appointed as follows:

- Clinician's Research Digest: Adult Populations and Child and Adolescent Populations, Chair: Pamela Reid, PhD
- Journal of Experimental Psychology: Learning, Memory, and Cognition, Chair: Stephen Rao, PhD
- Professional Psychology: Research and Practice, Chair: Kate Hays, PhD
- Psychology and Aging, Chair: Pamela Reid, PhD
- Psychology, Public Policy, and Law, Chair: David Dunning, PhD

Candidates should be nominated by accessing APA's EditorQuest site on the Web. Using your browser, go to http://editorquest.apa.org. On the Home menu on the left, find "Guests/Supporters." Next, click on the link "Submit a Nomination," enter your nominee's information, and click "Submit."

Prepared statements of one page or less in support of a nominee can also be submitted by e-mail to Sarah Wiederkehr, P&C Board Editor Search Liaison, at swiederkehr@apa.org.

Deadline for accepting nominations is Monday, January 9, 2017, after which phase one vetting will begin.