

Assessing Self-Efficacy for HIV Serostatus Disclosure  
Decisions and Negotiating Safer Sex in HIV Seropositive Persons:  
Scale Development, Reliability, and Validity

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### Abstract

Four studies were conducted to systematically develop scales for assessing self-efficacy to disclose HIV status to sex partners and negotiate safer sex practices among men and women living with HIV-AIDS. The first study used elicitation research methods to derive four sets of scenarios with graduated situational demands that could serve as stimulus materials in assessing self-efficacy. Two subsequent studies demonstrated that the self-efficacy scales for effective disclosure decisions and negotiating safer sex practices were internally consistent. Scales for assessing self-efficacy for HIV status disclosure decision-making and negotiating safer sex were also time stable over 1-month and demonstrated evidence for construct validity. In the fourth study, self-efficacy scales for effective disclosure decisions and negotiating safer sex were again reliable and showed evidence for construct, convergent, and divergent validity. Reliable and valid instruments for assessing self-efficacy to make effective HIV status disclosure decisions were therefore developed and described and these scales can be used in research to explain, predict, and enhance self-efficacy for these important behaviors.

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Research suggests that as many as one in three people living with HIV-AIDS engage in unprotected intercourse subsequent to knowing that they have HIV, and that continued risk behavior often occurs with uninfected partners (see Kalichman, 2000, for a review). For people living with HIV-AIDS, sexual decisions are closely linked to knowledge of a sex partner's HIV status and disclosure of their own HIV status to sex partners (Wenger, Kusseling, Beck, & Shapiro, 1994). Unfortunately, the potential for rejection, abandonment, physical and emotional abuse and other adverse consequences create substantial barriers to disclosing HIV status among persons living with HIV-AIDS (Rothenberg & Paskey, 1995). It is therefore often the case that people who have HIV infection do not disclose their HIV status to their sex partners (Bayer, 1996). Schnell et al. (1992), for example, reported that 11% of HIV infected men do not disclose their HIV status to primary sex partners. In a study of mostly low-income Hispanic men, Marks et al. (1991) found that 52% had not disclosed their HIV serostatus to at least one of their sex partners. In a similar study, 24% of HIV seropositive women had not disclosed to sex partners and 13% had not disclosed being HIV infected to anyone (Simoni et al., 1995). Effective HIV disclosure decision-making is therefore a difficult challenge facing most people living with HIV-AIDS, particularly within the context of their sexual relationships.

Among the many factors that influence decisions to disclose one's HIV status to sex partners, self-efficacy for making effective disclosure decisions may be of particular importance. Social cognitive theory defines self-efficacy as the self-evaluative belief held by an individual that he or she can effectively perform a specific behavior under specified conditions (Bandura, 1986, 1994). In both the HIV prevention and HIV-AIDS coping literatures, self-efficacy has emerged as a fundamental construct for predicting behavior and, perhaps more importantly, behavior change (Forsyth & Carey, 1998). Self-efficacy is also an important construct in the development and evaluation of behavioral interventions, including those targeting HIV status disclosure decisions and negotiating safer sex practices. Kalichman and Nachimson (1999) reported that self-efficacy beliefs were closely associated with decisions to disclose HIV status to sex partners as well as negotiating safer sex practices among people living with HIV-AIDS. Kalichman and Nachimson's (1999) study was among the first to show that lower self-efficacy is related to withholding information about one's HIV status to sex partners, suggesting that persons who fail to disclose their HIV status may do so because of a lack of confidence in their ability to make effective disclosure decisions. The importance of self-efficacy as a theoretical construct, its predictive value in behavioral research, and its potential as an outcome from behavioral interventions demonstrates a need for reliable and valid measures of self-efficacy for decisions to disclose HIV status to sex partners.

Although of theoretical and practical importance, self-efficacy is often considered a difficult construct to measure. In a review of 65 published studies that assessed self-efficacy in relation to HIV risk and preventive behaviors, Forsyth and Carey (1998) determined that self-efficacy scales are often methodologically flawed and lack construct validity. They found that 45% of studies used measures that appeared to assess constructs other than self-efficacy and that

many of the scales that actually measured self-efficacy were not behaviorally specific. Fortunately, Bandura (1997) has offered several practical guidelines for assessing self-efficacy. For example, Bandura (1997) stated that “Efficacy beliefs should be measured in terms of particularized judgments of capability that may vary across realms of activity, under different levels of task demands within a given activity domain and under different situational circumstances” (p. 42). According to Bandura (1997) self-efficacy scales should be limited to beliefs about personal abilities to enact behaviors under specified conditions. Elaborating on Bandura’s (1997) suggestions, Forsyth and Carey (1998) stated that measures of self-efficacy should specify beliefs, behaviors, and circumstances within a particular domain of functioning and in situations that present graduated task demands. Self-efficacy should, therefore, be assessed in relation to specific behaviors and across situations that vary in terms of performance difficulty. To assess self-efficacy within functional domains and situations requires construction of realistic and relevant scenarios within which target behaviors may be performed and self-efficacy can be assessed. The challenge in assessing self-efficacy therefore lies in identifying situations that are personally relevant to a majority of persons in a population. Situations that are too generic can jeopardize the specificity of a self-efficacy scale and, on the other hand, situations that are too idiosyncratic can be irrelevant to a majority of the target population. Formative elicitation research with members of the target population should therefore be first undertaken to derive personally relevant and meaningful scenarios in which self-efficacy can be assessed.

In this paper, we report four studies conducted to develop and evaluate the psychometric properties of four self-efficacy scales to assess self-efficacy for two behaviors (a) decisions to disclose HIV status to sex partners and (b) negotiating safer sex. In Study 1, we conducted formative elicitation research to derive realistic situations concerned with HIV status disclosure to sex partners and for negotiating safer sex. Scenarios derived from formative research served as the basis for the self-efficacy assessment instruments. Studies 2 and 3 report initial tests of the psychometric properties of the self-efficacy scales developed in Study 1. Finally, Study 4 confirms the psychometric properties of the self-efficacy scales and further evaluates their construct validity.

### Overview of the scale development studies

We report four studies that systematically developed and tested the psychometric properties of scales assessing self-efficacy in men and women living with HIV-AIDS. Data were collected as part of a larger program of research concerned with the social and emotional adjustment of people living with HIV-AIDS. Men and women were recruited from AIDS service organizations, health care providers, social service agencies, community residences for people living with HIV-AIDS, and infectious disease clinics in Atlanta, Georgia. Flyers announcing the study opportunity were posted in these locations and participants were referred from HIV-AIDS service providers. Potential participants for each study phoned the research program offices to schedule an appointment to complete measures. The research program was located at a community agency in an area of Atlanta that was accessible by public transportation and convenient to several AIDS service providers. Individuals were told that they would be asked to complete an anonymous survey concerning their health, mental health, social relationships,

substance use, and sexual behaviors. Participant's HIV status was verified in each study by showing proof of HIV positive test results or HIV-related medical care with a photo identification card. All studies asked participants to complete self-administered assessment instruments. However, persons who evidenced difficulty reading or requested assistance to complete the study measures (< 10%) were administered the instruments in face-to-face interviews. The measures required between 60- and 90-minutes to complete and participants were compensated \$30.

### Study 1

In this first study, we conducted formative elicitation research to identify candidate scenarios that would serve as the basis for measures of self-efficacy for HIV disclosure decisions and negotiating safer sex practices in HIV positive persons. Based on social cognitive theory (Bandura, 1997) and research on the assessment of self-efficacy for negotiating safer sex (Forsyth & Carey, 1998; Maibach & Murphy, 1995), we developed self-efficacy measures that would allow individuals to judge their capability within and across domain relevant activities, as well as across varying levels of situational demands (Bandura, 1997). We aimed to develop scenarios that would allow for the assessment of actions in two behavioral domains: (a) decisions to disclose HIV status to sex partners and (b) negotiating safer sex. The first step in developing our self-efficacy scales, and the focus of Study 1, was therefore to identify realistic and personally relevant situations within which persons confront disclosure decisions and negotiate safer sex. Through a series of feedback mechanisms we crafted the situations into brief vignettes that would serve as the stimulus materials for the self-efficacy scales.

### Methods

To achieve scenarios for assessing self-efficacy, we followed the recommendations of Bandura (1997), Forsyth and Carey (1998), and Maibach and Murphy (1995). As a starting point, we used scenarios that were first described for assessing safer sex self-efficacy with populations at-risk for HIV infection (Murphy, Multhauf, & Kalichman, 1995). Elicitation interviews were conducted with 2 HIV positive men and 2 HIV positive women to obtain initial receive feedback on the realism and relevance of the scenes. We also asked participants to generate stories from their own experience in which they had to deal with disclosure decisions and negotiating safer sex. We used participant feedback as the cornerstone for revising the scenes for use in the self-efficacy scales.

Initial interviews and feedback lead to the formulation of 4 scenes depicting relationship contexts within which persons may disclose their HIV status and negotiate safer sex. Next we derived a second version of each scene to increase the potential difficulty of the situation for deciding to disclose and to negotiating safer sex. Graduated scenarios are necessary for assessing self-efficacy in order to allow adjustments in confidence ratings under increased situational demands (Bandura, 1997; Forsyth & Carey, 1998). In the final step, the 4 sets of scenes (2 scenes in each set) were presented to focus groups of 3 HIV seropositive men and 3 seropositive women. The 6 focus group participants met twice to provide feedback on the scenarios and to

help refine the content. Participants discussed and rated all sets of scenarios for their realism and personal relevance. Responses were tabulated and comments were integrated in revising the next generation of scenes.

## Results

Results of the initial scale development process yielded sets of scenarios depicting situations in which HIV positive persons may decide about disclosing HIV status and negotiating safer sex. Three sets of scenarios were relevant to disclosing HIV status to an HIV negative partner or a partner of unknown HIV status and all 4 sets of scenarios were capable of eliciting responses to self-efficacy for negotiating safer sex practices. Our findings also showed that HIV seropositive men and women in formative research provided strikingly similar themes in their stories of risky situations, suggesting the development of a single assessment instrument for men and women. Focus groups with HIV positive men and women confirmed that all 8 scenarios were rated as realistic and appropriate for men and women. Below are the 4 sets of final stimulus scenes.

**Set 1 Scene 1.** This week has been difficult for you and you want to forget all of your problems for a while. You go out walking and meet up with some people you know. You go off with them and have a drink to relax. Even though you haven't had much to drink you feel it affecting you. One of your friends introduces you to someone you have seen before and felt attracted to in the past. This person seems to be making it clear that they want to have sex with you. You feel interested.

After responding to the above scene, participants responded to the following scene that posed the same situation with increased challenge:

**Set 1 Scene 2.** Just like in the previous scene, imagine that this week has been difficult for you and you want to forget all of your problems. You go out walking and meet up with some people you know. You go off with them and have a few drinks. You get to feeling pretty buzzed when one of your friends introduces you to someone you have been attracted to in the past. This person seems to be making it clear that they want to have sex with you. You feel like you are a little drunk. You also feel interested in being with them.

**Set 2 Scene 1.** As in the previous scene, imagine that you have had a difficult week. You have been feeling lonely and you realize that it has been some time since you had sex with anyone. You decide to go out and meet some friends to get something to eat. While out, you meet a person that you have seen around and think is attractive. They seem interested in you and seem to be flirting with you. Soon it becomes clear that they want to have sex with you.

**Set 2 Scene 2.** As in the previous scene, imagine that you have been feeling lonely and depressed. You realize that it has been a long time since you were intimate with someone. While you are out you meet a person that you have seen around and think is attractive. They seem interested in you and you want to be with this person.

After responding to the above scene, participants responded to the following scene that posed the same situation with increased challenge:

**Set 3 Scene 1.** While out with some friends and having fun, you unexpectedly run into an ex-partner from your past. You had sex with this person many times long before you became HIV positive. They start telling you how much they missed being with you and that they think of you often. Then they say that they are not currently partnered. You are feeling good and the mood seems right for the two of you to get together. Because you still like this person and have feelings for them you are wanting to be with this person.

**Set 3 Scene 2.** Imagine that you had been in a relationship with someone who just left you and ended it. You unexpectedly run into an ex-partner from your past who is visiting in town. You had sex with this person many times long before you became HIV positive. After telling you how much they missed being with you and that they think of you often, this person asks you to come to their hotel room. You are feeling really good, the mood seems right, and you want to have sex with this person.

After responding to the above scene, participants responded to the following scene that posed the same situation with increased challenge:

**Set 4 Scene 1.** Imagine that you are in a long-term sexual relationship with a person who is HIV negative. The two of you always practice safer sex and have a very satisfying relationship. You feel particularly good about yourself and your life with your partner. One evening your partner tells you that they want to experience an even higher level of closeness with you and want to have unprotected intercourse, just this one time. You have very strong feelings for this person and the idea of taking your relationship to another level is very appealing to you.

After responding to the above scene, participants responded to the following scene that posed the same situation with increased challenge:

**Set 4 Scene 2.** Like the previous scene, imagine that you are in a long-term sexual relationship. The two of you always practice safer sex and have a very satisfying relationship. You have been feeling good about your life with your partner. One evening in midst of hot and passionate foreplay, your partner tells you that they want to experience you completely. Your partner moves toward having unprotected intercourse, saying "Please, just this one time." You are caught up in the moment and feeling a strong desire to give your partner what they want.

For each scene, all participants indicated that the scene had personal relevance, would apply to persons of their gender, and was a situation that they could relate to.

### Summary

Through a series of elicitation interviews and focus groups we successfully identified scenes depicting situations in which HIV positive persons would decide whether to disclose their

HIV status and negotiate safer sex. The initial scenes were adapted from measures of self-efficacy for safer sex behaviors in at-risk populations (Murphy et al., 1995). It was not surprising that the scenes originally developed for primary prevention provided a reasonable starting point for persons with HIV-AIDS because persons who contract HIV are merely a subset of those who are at-risk for HIV. In addition, we found that the scenes could be constructed in a single format for men and women, eliminating the need for gender specific scenarios and parallel forms. The 8 scenes developed in Stage 1 therefore formed the basis for testing the psychometric properties of the self-efficacy scales.

## Study 2

Following initial construction of stimulus scenes in Study 1, we conducted a test of the psychometric properties of the self-efficacy, particularly their internal consistencies and test-retest reliabilities. In addition, as recommended by Forsyth and Carey (1998), we examined the distributions of scale scores for possible ceiling effects.

### Methods

Men (N=43) and women (N=44) living with HIV infection were administered the self-efficacy scales twice over a 1-month period. We selected a 1-month time frame for reassessment to provide time between administrations and to maximize the potential follow-up rate. Seventy percent of participants were African-American, 25% were white, and 5% were of other ethnicities; 38% self-identified as gay, 8% bisexual, and 53% were heterosexually identified. The mean years of education was 12.4 ( $SD = 2.1$ ), with 64% of participants reporting 12 years of education or less.

For each of the 3 sets of scenes relevant to disclosure decisions, participants rated their confidence in response to the following items: (a) “How confident are you that you could make an effective decision of whether to tell this person you are HIV positive in this situation?” and (b) “How confident are you that you could know whether it was safe to tell this person in this situation that you are HIV positive?” In addition, participants rated their confidence in being able to negotiate safer sex in response to all 4 sets of scenes using the following 2 items: (a) “How confident are you that you could bring up the need to practice safer sex in this situation?” and (b) “How confident are you that you would refuse to have unsafe sex in this situation even if your partner pressures you to be unsafe?” (see Study 1 for exact wording of scenes). Consistent with social cognitive theory, self-efficacy beliefs were assessed using an ascending scale of perceived ability to perform the actions, with responses on an 11-point scale, 0 = Can not do, 5 = Moderately certain I can do, and 10 = Certain I can do. Thus, summing the items for each of the 2 disclosure behaviors (Effective decision, know whether it is safe) across 6 scenes relevant to disclosure allowed us to compute mean rating scores for 2 disclosure decision self-efficacy scales and ratings for each of the 2 safer sex behaviors (bringing up condoms, refusing unsafe sex) were summed across all 8 scenes to compute mean scores for the 2 safer sex self-efficacy scales.

## Results

Reliability. Analyses were performed to examine the internal consistencies (alpha coefficients) and time stability (1-month test-retest) of the 4 self-efficacy scales. Results showed that the 4 self-efficacy scales demonstrated a high degree of item cohesion at both assessment points; all alphas  $> .90$  (see Table 1). Internal consistencies were similar for samples of men and women. In addition, the two self-efficacy for disclosure scales demonstrated acceptable test-retest reliability over 1-month. However, it should be noted that the test-retest correlations for the self-efficacy scales for negotiating safer sex for both men and women were lower than the self-efficacy disclosure decision scales.

Tests for ceiling effects. Because self-efficacy measures are often prone to ceiling effects (Forsyth & Carey, 1998), we examined the distributions of scores for the 4 self-efficacy scales. Results showed that mean self-efficacy ratings for each scale exceeded the scale midpoints; mean ratings were 7.5 for both disclosure decision scales, 8.5 for the safer sex discussion scale, and 7.5 for refusal of unsafe sex. The scales demonstrated relatively uniform standard deviations (range 2.2 to 2.9). As expected, scores were skewed, ranging from  $-1.1$  to  $-1.2$ . However, despite the skew observed in these distributions, there was sufficient variability to warrant proceeding with further evaluations of the scales and their sensitivity for detecting differential responses.

## Summary

An initial test of reliability for the self-efficacy scales showed that all 4 scales demonstrated a high degree of item cohesion. Time stability was also acceptable for the disclosure self-efficacy scales, with weaker time stability for the self-efficacy scales for negotiating safer sex. Therefore, variability in responses over time occurred for both scales, with greater variability observed for negotiating safer sex. As expected (Bandura, 1997). Self-efficacy ratings occurred at the higher end of the scale range but with sufficient variability to conclude that the scales were not limited by ceiling effects. In study 3, we replicated the reliability analyses and conducted initial tests for construct validity in a larger sample of HIV positive men and women.

## Study 3

Evidence for scale validity is provided by relationships between the self-efficacy scales and their associated target behaviors (Forsyth & Carey, 1998). In addition to replicating the reliability analyses presented in Study 2, we therefore examined the associations between the disclosure self-efficacy scales and disclosure practices, and between negotiating safer sex self-efficacy scales and sexual behaviors. We also examined the intercorrelations among scales and tested for potential gender differences for the self-efficacy scales in this sample.

## Methods

As part of a larger study of sexual behavior in people living with HIV-AIDS (Kalichman & Nachimson, 1999), 212 HIV positive men and 130 HIV positive women completed the self-efficacy scales. All participants in this study had been sexually active in the 6-months prior to data collection. Participants were on average 37.2 years old ( $SD = 8.5$ ), 67% were African-American, 29% white, and 5% of other ethnic backgrounds. Mean years of education was 12.2 ( $SD = 2.1$ ).

In addition to completing the self-efficacy scales and measures of demographic characteristics, participants reported the number of times in the past 6-months that they had engaged in sexual intercourse (vaginal and anal), the number of partners for each type of intercourse, the number of times that condoms were used during sexual intercourse, the number of times they disclosed their HIV status to sex partners, and the number of HIV seropositive, seronegative, and unknown serostatus sex partners they had during that same time period. All response formats were open-ended, requiring numerical values for responses to avoid subtle influences on self-reports that can result from closed formats (Catania, Gibson, Chitwood, & Coates, 1990).

## Results

Internal consistency. Reliability analyses showed that all 4 self-efficacy scales were again internally consistent: effective disclosure decisions,  $\alpha = .94$ ; knowing it is safe to disclose,  $\alpha = .94$ ; safer sex discussions,  $\alpha = .92$ ; and risk refusal,  $\alpha = .95$ .

Scale intercorrelations. Correlations were computed among the 4 self-efficacy scales, separately for men and women as well as for the entire sample. Table 2 shows that although the scales all correlated significantly and in a positive direction, the intra-domain correlations were of substantially greater magnitudes than correlations between functional domains, suggesting reasonable differentiation between scales assessing self-efficacy for HIV status disclosure decisions and self-efficacy for negotiating safer sex.

Construct validity - Associations between self-efficacy scales and targeted disclosure behaviors. Analyses were conducted to test the relationships between the self-efficacy scales and their associated disclosure behaviors. First, we compared persons who had disclosed their HIV status to sex partners in the previous 6-months to those who had not made such disclosures. Results showed that persons who had not disclosed scored significantly lower on the self-efficacy scale for making an effective disclosure decision ( $M = 6.1$ ,  $SD=3.4$ ) compared to persons who had disclosed ( $M = 7.4$ ,  $SD=2.6$ ),  $t(339) = 3.7$ ,  $p < .01$ . Similarly, persons who had not disclosed scored lower on the self-efficacy scale for knowing when it is safe to disclose ( $M = 6.4$ ,  $SD=3.2$ ) compared to persons who had disclosed ( $M = 7.3$ ,  $SD=2.5$ ),  $t(339) = 2.9$ ,  $p < .01$ . We also found that 129 (38%) persons had sex with a partner in the previous 6-months whose HIV status was unknown at the time. We found that persons who had an unknown HIV status partner obtained significantly lower scores on self-efficacy for making effective disclosure decisions than persons who only had sex with persons whose HIV status was known ( $M = 6.1$

$SD=2.9$  and  $M = 7.2$   $SD=2.9$ , respectively),  $t(338) = 3.1, p < .01$ . Also, persons who had unknown HIV status partners compared to those who did not, differed significantly for self-efficacy for knowing when it is safe to disclose ( $M = 6.2, SD=2.9$  and  $M = 7.3, SD=2.8$ , respectively),  $t(338) = 3.4, p < .01$ . These findings support the construct validity of the disclosure decision-making self-efficacy scales.

Construct validity- Associations between self-efficacy scales and targeted sexual behaviors. In these analyses we correlated the self-efficacy scales with sexual risk-related behaviors. Self-efficacy for negotiating safer sex correlated with number of sex partners reported for the past 6-months,  $r(341) = -.20, p < .01$ , and percent of intercourse occasions protected by condoms for men,  $r(142) = .25, p < .01$ , and women,  $r(100) = .31, p < .01$ . Similarly, self-efficacy for refusing unsafe sex correlated with percent of intercourse occasions protected by condoms for men,  $r(142) = .35, p < .01$ , and women,  $r(100) = .30, p < .01$ . However, the correlation between self-efficacy for refusing unsafe sex and number of sex partners reported in the past 6 months was not significant. We also compared self-efficacy for negotiating safer sex scores with the 102 persons who reported 100% use of condoms during sex in the past 6-months to the 140 persons who had intercourse without consistent use of condoms. Results showed that persons who used condoms during every act of intercourse endorsed greater negotiating safer sex self-efficacy than inconsistent condom users ( $M = 9.1, SD=1.6$  and  $M = 7.8, SD=2.2$ , respectively),  $t(240) = 5.2, p < .01$ . Similar results occurred for self-efficacy for refusing unsafe sex, with persons who used condoms during every act of intercourse endorsing greater self-efficacy than inconsistent condom users ( $M = 8.6, SD=2.3$  and  $M = 6.4, SD=2.9$ , respectively),  $t(240) = 6.6, p < .01$ .

Gender differences in self-efficacy. Table 3 presents the means, standard deviations, and significance tests for the 4 self-efficacy scales comparing men and women. As shown in the table, men scored significantly higher on both self-efficacy for disclosure decision-making scales compared to women. However, gender differences were not significant for either of the safer sex negotiation self-efficacy scales.

### Summary

Results of Study 3 showed that the self-efficacy scales were once again internally consistent. In addition, there was evidence for the construct validity of the scales for assessing self-efficacy for disclosure decision-making. People who have recently disclosed their HIV status to sex partners scored significantly higher for both self-efficacy to make an effective disclosure decision and for knowing whether a situation was safe for disclosing. We also found evidence for gender differences on both disclosure self-efficacy scales with women demonstrating lower self-efficacy than men. This finding is consistent with previous research that shows women at risk for HIV infection experience low self-efficacy for sexually assertive communications (Sikkema et al., 1995). Scores for the disclosure decision-making self-efficacy scales therefore demonstrated evidence for construct validity as well as a pattern of gender differences that is consistent with previous research. It should also be noted that the mean scores for subgroups with lower self-efficacy approached the scale midpoints, suggesting that the disclosure decisions scales were not limited by ceiling effects.

Scales for assessing self-efficacy for negotiating safer sex and refusing unsafe sex demonstrated evidence for construct validity. Self-efficacy scales for negotiating safer sex and safer sex behaviors were correlated in this sample. However, there were no gender differences in self-efficacy for negotiating safer sex and for refusing unsafe sex, despite the evidence in the literature to the contrary (Forsyth & Carey, 1998). These findings may be related to the reduced sensitivity that can result from the uniformly higher ratings observed in the safer sex negotiation self-efficacy scales. Study 4 extended the evidence for self-efficacy scale validity, including convergent and divergent validity analyses

#### Study 4

Results thus far suggest that the self-efficacy scales for decisions to disclose HIV status to sex partners and negotiating safer sex are internally consistent, time stable, and show evidence for construct validity. However, validation of self-efficacy scales should include associations with targeted behavioral performances (construct validity), associations with conceptually related constructs (convergent validity), and evidence for distinction from unrelated constructs (divergent validity, Forsyth & Carey, 1998). Study 4 was conducted to provide additional evidence for the construct, convergent, and divergent validity of the self-efficacy scales. For example, scores on a self-efficacy for disclosure decisions measure should be related to an individual's intentions to perform behaviors related to self-disclosure of HIV status to sex partners and self-efficacy for negotiating safer sex should be associated with safer sex negotiation behaviors. Also, the observed associations between self-efficacy and related constructs such as behavioral intentions should not be so strong as to suggest conceptual or measurement redundancies (Bandura, 1997). In addition, as shown in Study 3 persons who recently disclose their HIV status should differ in terms of self-efficacy for disclosure decisions from individuals who have not recently disclosed. Similar patterns should be observed for self-efficacy to negotiate safer sex. We therefore conducted Study 4 to replicate and extend the previous tests for validity of the self-efficacy for disclosure and negotiating safer sex scales.

#### Methods

Participants were 229 HIV seropositive men and 98 HIV positive women and 4 HIV positive transgender persons enrolled in a study of HIV-related social and emotional support. The mean age was 37 years and the sample was ethnically diverse; 72% African-American, 23% white, and 5% of other ethnicities. Half of the sample (54%) had completed 12 years or less of education and 64% of the sample had annual incomes under \$10,000. Half of participants (52%) identified themselves as gay or bisexual and 42% had children.

#### Measures

In addition to providing demographic information and completing the self-efficacy scales, participants were also administered a measure of intentions to perform specific disclosure and safer sex negotiation behaviors to assess convergent validity and measures of health status, depression, and social support to establish divergent validity. An interview was also conducted to

determine whether participants had disclosed their HIV status to sex partners in the previous 3-months. In addition, sexual practices over the previous 3-months were assessed in the structured interview.

Behavioral intentions were assessed by asking participants to “vividly imagine a situation with a person whose HIV status you do not know and they want to have unsafe sex with you. Imagine that you are very attracted to this person and want to be with them, and they really want to have sex with you.” Following this instruction participants rated their intentions to perform 3 specific acts related to disclosing their HIV status: (a) “I will tell my partner that I am HIV positive”; (b) “I will ask my partner their HIV status”; and (c) “I will plan how to best tell my partner that I am HIV positive” and 3 items related to negotiating safer sex: (a) “I will keep condoms nearby”; (b) “I will tell my partner that we need to practice safer sex; and (c) refuse to have sex without a condom. Intention items were rated on 6-point scales, 1 = Definitely will not do, 6 = Definitely will do.

Participants also completed a brief health inventory that asked the year they were tested HIV positive and whether they had experienced 14 different HIV symptoms. We used the 21-item Beck Depression Inventory (Beck & Steer, 1993) to assess depression and to assess social support participants completed the 15-item Social Support Questionnaire (O’Brien et al., 1993, alpha = .89).

Disclosure of HIV status to sex partners and negotiating safer sex were determined in the context of sexual behavior interviews. Specifically, participants were asked to recount their sexual activities that have occurred over the past 3 months. For each sex partner, participants were asked to estimate the number of times they and their partner engaged in protected and unprotected sexual practices, whether they had disclosed their HIV status to their partner, and whether they were aware of their partner’s HIV status. These data were used to index men and women who had and had not recently disclosed their HIV status to sex partners and to derive frequencies of sexual practices.

## Results

Internal consistency. Reliability analyses showed that the self-efficacy scales were once again internally consistent: effective disclosure decisions, alpha = .93; knowing it is safe to disclose, alpha = .90; bringing up the need to use condom, alpha = .95; and unsafe sex refusal, alpha = .90.

Convergent and divergent validity. Table 4 presents the correlations between the 4 self-efficacy scales and the 6 measures of behavioral intentions related to disclosure and negotiating safer sex. Results showed that the self-efficacy scales were significantly correlated with the intention items, with higher degrees of self-efficacy related to greater intentions to perform associated behaviors. However, the measures did not demonstrate redundancy, with self-efficacy scores accounting for between 13% and 28% of the variance in behavioral intentions. Correlations between self-efficacy scales and intention measures were consistently greater in magnitude within disclosure and negotiating safer sex behavioral domains than between

domains. However, as expected self-efficacy scales did correlate with some of the cross-domain intentions (Bandura, 1997).

With respect to divergent validity, the self-efficacy scales were not associated with HIV symptoms and depression (see Table 4). However, there were associations between number of years since testing HIV positive and self-efficacy scales for disclosure decisions; knowing one's HIV status for a longer period of time was related to greater self-efficacy for managing disclosure decisions. In addition, self-efficacy for discussing condom use was correlated with social support: higher self-efficacy scores were related to greater social support.

Construct validity -Self-efficacy among persons who have recently disclosed HIV status. Among the 222 (67%) participants who reported sexual partners in the previous 3 months, we found that 57 (26%) had not disclosed to at least one of their sex partners. Persons who had not disclosed their HIV status to at least one of their recent partners demonstrated significantly lower self-efficacy for effective disclosure decisions,  $F(1,219) = 19.0$ ,  $p < .01$ , and lower self-efficacy for knowing when it is safe to disclose,  $F(1,219) = 18.5$ ,  $p < .01$  (see Table 5). Among the 57 persons who had not disclosed their HIV status to recent partners, 56 (98%) reported having HIV negative partners as compared to 98 (59%) persons who had disclosed their HIV status. We therefore repeated the comparisons with only those participants who reported at least one HIV negative or unknown HIV status partner in the previous 3 months. As shown in Table 5, differences between groups on the disclosure decision-making self-efficacy scales remained significant.

Construct validity – Self-efficacy for negotiating safer sex. To examine the construct validity of the negotiating safer sex self-efficacy scales, we correlated scale scores with high risk and risk-reducing sexual behaviors. Results showed that self-efficacy for negotiating safer sex was significantly related to practicing unprotected anal intercourse – the highest risk sexual behavior; higher self-efficacy scores were associated with fewer high-risk behaviors. For persons reporting any anal intercourse activity in the previous 3-months ( $N = 96$ ), self-efficacy for negotiating safer sex was also related to condom use during anal intercourse; higher self-efficacy was related to greater condom use (see Table 6). In addition, persons who practiced unprotected anal intercourse in the previous 3-months scored significantly lower on the self-efficacy scale for discussing condom use ( $M = 7.3$ ,  $SD = 2.4$ ), and refusing unsafe sex ( $M = 6.2$ ,  $SD = 2.8$ ) compared to persons who did not practice unprotected anal intercourse ( $M = 8.7$ ,  $SD = 1.7$  for discussing condom use, and  $M = 7.8$ ,  $SD = 2.6$  for refusing unsafe sex),  $t's(326) = 4.7$ ,  $p < .01$ , and  $3.8$ ,  $p < .01$ , respectively.

### Summary

Consistent with Studies 1 and 2, the self-efficacy for HIV-AIDS disclosure decision-making and negotiating safer sex scales were reliable. In addition, we found that the self-efficacy scales were related to conceptually relevant constructs and were unassociated with unrelated constructs. The significant correlations between self-efficacy scales for disclosing HIV status and number of years since testing HIV positive suggest that self-efficacy increases with time and possibly experience managing disclosure situations, further supporting the construct validity of

our scales. Thus, Study 4 provides further evidence for the reliability and validity of the HIV status disclosure decision-making and negotiating safer sex self-efficacy scales.

### General Discussion

Through a series of 4 systematic investigations we developed and evaluated scales for assessing self-efficacy for HIV serostatus disclosure decision-making and negotiating safer sex. We found that self-efficacy for disclosing HIV status was conceptually different from, although related to, self-efficacy for negotiating safer sex. The distinctions between HIV status disclosure and negotiating safer sex behaviors are important. Because the situational demands for disclosing HIV to sex partners may be distinct from the demands for practicing safer sex. For instance, unprotected intercourse between two persons already infected with HIV carries significant health threats because co-infection with other STDs poses serious hazards for persons with compromised immune systems and because repeated exposures to HIV may serve as a co-factor for HIV disease progression (Flateby, Eskild, Brekke, & Moi, 1996). In addition, unsafe sex commonly occurs between persons who have disclosed their HIV status and their uninfected partners. Thus, safer sex decisions are relevant to many situations in which HIV status disclosure decisions are irrelevant.

Because we developed our scales on the basis of scenarios provided by a small number of HIV infected persons it is likely that these scenarios are not representative of HIV positive persons relationships. Our focus on common sexual relationship contexts limits the use of the scales for assessing self-efficacy in less typical sexual situations, such as anonymous sex environments and situations where sex is traded for money or drugs. Another limitation is that the scales were tested among persons living with HIV in a large city in the southeastern United States. The applicability of our self-efficacy scales should therefore be tested in other regions with ethnically and culturally different populations. In addition, although the scales demonstrated good internal consistency, there was less evidence for time stability of the scales. Self-efficacy for disclosure is likely influenced by changes in relationships and experience. However, the scales themselves may yield unstable scores over time. Finally, additional studies are needed to validate the scales against more stringent performance criteria, such as observational measures of behavioral skills and prospective assessments of disclosures and negotiated safety over time. The 4 studies reported here demonstrate the successful application of procedures for developing reliable and valid self-efficacy measures recommended by Bandura (1997). The self-efficacy scales developed in this research may be most usefully applied as outcome measures in behavioral intervention studies. Processes involved in modeling and practicing behaviors are theorized to result in increased self-efficacy to perform the specified actions. Health-related behavior programs based on social cognitive theory generally attempt to build skills and reinforce self-efficacy for engaging in targeted behaviors. Thus, self-efficacy is a key mediating variable in studies and interventions grounded in Social Cognitive Theory, as well other models commonly used in behavioral research including the Theory of Planned Behavior (Ajzen & Madden, 1986), the AIDS Risk Reduction Model (Catania, Kegeles, & Coates, 1990), and the Information, Motivation, and Behavioral Skills model of HIV preventive behavior (Fisher & Fisher, 1992). The self-efficacy scales developed in the studies reported here might therefore

have use in future theory-based research investigating HIV positive persons' decisions to disclose their HIV status to sex partners and negotiate safer sex.

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Table 1

Internal Consistency and Time Stability Coefficients for the 4 Self-Efficacy Scales Administered to HIV Positive Men and Women - Study 2.

	Alpha Coefficients at			Alpha Coefficients at			1-Month Test-Retest		
	Time 1 Assessment			Time 2 Assessment			Correlations		
	Men (N=42)	Women (N=44)	Total (N=86)	Men (N=37)	Women (N=37)	Total (N=74)	Men (N=37)	Women (N=37)	Total (N=74)
Make an effective disclosure decision	.97	.92	.95	.97	.94	.96	.72	.88	.79
Know whether it was safe to disclose	.96	.95	.96	.98	.95	.97	.70	.83	.76
Bring up the need to practice safer sex	.96	.93	.94	.93	.95	.94	.47	.64	.56
Refuse to have unsafe sex	.96	.92	.95	.96	.97	.96	.68	.37	.59

Table 2

Intercorrelations of Scales Assessing Self-Efficacy for HIV Status Disclosure Decisions and Negotiating Safer Sex for Men (N = 212) and Women (N= 130) - Study 3.

	Self-Efficacy for Refusing Unsafe Sex			Self-Efficacy for Discussing Safer Sex			Self-Efficacy for Knowing it is Safe to Disclose		
	Men	Women	Total	Men	Women	Total	Men	Women	Total
Self-efficacy to make an effective decision to disclose	.38	.29	.32	.62	.40	.51	.95	.83	.90
Self-efficacy for knowing it is safe to disclose	.40	.39	.38	.63	.48	.56			
Self-efficacy for discussing safer sex	.59	.64	.60						

Note: All  $r$ 's significant,  $p < .01$ ; Correlations within a behavioral domain are shown within boxes.

Table 3

Gender Differences on Self-Efficacy For Disclosure Decisions and Negotiating Safer Sex Scales– Study 3.

	Men		Women		t	p
	<u>Mean</u>	<u>SD</u>	<u>Mean</u>	<u>SD</u>		
Make an effective disclosure decision	7.3	2.7	5.9	3.4	4.1	.001
Know whether it was safe to disclose	7.3	2.6	6.2	3.2	3.5	.001
Bring up the need to practice safer sex	8.4	1.9	8.1	2.4	.9	n.s.
Refuse to have unsafe sex	7.1	3.0	7.4	2.9	.8	n.s.

Table 4

Correlations Among Self-Efficacy for HIV Status Disclosure and Negotiating Safer Sex Scales and Behavioral Intentions to Perform Related Acts – Study 4.

Construct	Effective decision to disclose	Know whether it is safe to disclose	Discuss condoms	Refuse unsafe sex
<u>Behavioral intentions</u>				
Will tell partner that I am HIV positive	.48 **	.42 **	.27 **	.14 *
Will ask partner their HIV status	.40 **	.33 **	.28 **	.16 *
Will plan how to tell partner I am HIV positive	.34 **	.30 **	.26 **	.13 *
Will keep condoms nearby	.06	.02	.32 **	.21 **
Will tell partner to practice safer sex	.15 *	.13	.40 **	.26 **
Will tell partner that I won't have unsafe sex	.17 *	.11	.36 *	.35
<b>Health and mental health status</b>				
HIV symptoms	-.01	-.03	-.18 **	-.06
Years since testing HIV positive	.05	.07	.02	-.09
Depression	-.09	-.09	-.11	.01
Social support	-.18 **	.18 **	-.16	.03

Note: all  $r$ 's  $df=331$ ; \*  $p < .05$ , \*\*  $p < .01$

Table 5

Comparisons Between Person Who Had and Who Had Not Disclosed HIV Status to Sex Partners in the Previous 3 months on Self-Efficacy for Disclosure Decision Scales – Study 4.

	Persons who have not disclosed to a partner in past 3-months ( <u>N</u> =57)		Persons who have disclosed to a partner in past 3-months ( <u>N</u> =165)		<u>p</u>
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	
Self-efficacy to make An effective decision To disclose	5.8	3.2	7.6	2.5	.01
Self-efficacy for Knowing it is safe To disclose	5.4	3.1	7.2	2.6	.01
<u>Limited to persons with HIV Negative partners</u>	<u>N</u> =56		<u>N</u> =98		
Self-efficacy to make An effective decision To disclose	5.9	3.1	7.6	2.5	.01
Self-efficacy for Knowing it is safe To disclose	5.5	3.1	7.3	2.6	.01

Table 6

Correlations Among Self-Efficacy for Negotiating Safer Sex Scales and Sexual Risk Behaviors – Study 4.

Behavior	Discussing condoms	Refusing unsafe sex
Unprotected receptive anal intercourse	-.15 **	-.17**
Unprotected insertive anal intercourse	-.19 **	-.13*
Total unprotected anal intercourse	-.22**	-.20**
Proportion of anal acts protected by condoms	.27**	.30**

Note: \*  $p < .05$ , \*\*  $p < .01$