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Stages of Change, Decisional Balance, and Self-Efficacy in Condom Use Among Rural African-American Stimulant Users

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Abstract

This pilot study (a) examined the stages of change (SOC) for condom use with primary and casual partners among rural heterosexual African American stimulant users, (b) identified gender differences in variables associated with SOC, and (c) assessed the association of SOC with decisional balance and self-efficacy. Seventy-two participants completed the study. SOC with a primary partner was much lower than SOC with a casual partner, indicating more consistent condom use with casual partners. Significant gender differences existed in decisional balance for condom use for both primary ($p = 0.02$) and casual partners ($p = 0.03$), with women having higher decisional balance scores than men. Women also reported higher self-efficacy scores for condom use with casual partners than men. In regression models, age, decisional balance, and self-efficacy were significantly associated with SOC for condom use with a primary partner; however, only self-efficacy was significantly associated with SOC with casual partners. The findings provide support for the development of interventions that promote the advantages of and increase self-efficacy for condom use.

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Keywords

African American; decisional balance; rural; self-efficacy; stimulant use; Transtheoretical Model

The Centers for Disease Control and Prevention (CDC, 2008) has estimated that there are over 1.1 million cases of HIV in the United States. African Americans, Hispanics, and men who have sex with men are disproportionately affected by HIV infection (CDC, 2008; CDC, 2007a). The rates of new HIV infections are estimated to be 83.8 per 100,000 population among African Americans, 29.4 per 100,000 among Hispanics, and 11.5 per 100,000 among Caucasians (CDC, 2008; CDC, 2007b). The HIV prevalence rate for African American men is 6 times the rate of Caucasian men. The HIV prevalence rate for African American women is 18 times the rate of Caucasian women (CDC, 2008). The CDC (2008) has estimated that approximately 21% of people living with HIV are unaware of their infection, placing others at risk for contracting HIV through unprotected sexual contact. High-risk heterosexual contact remains the primary mode of transmission for HIV among African American women and accounts for 80% of the new infections compared to 13% of new infections among African American men (CDC, 2008).

The South has the largest number of AIDS cases (40%) of any region in the United States (CDC, 2008). Of those who have died from HIV infection, there has been a steady increase from 28% to 51% of the proportion who reside in the South. The South shares a substantial burden of the HIV epidemic, particularly in areas of the rural South, and especially among rural African Americans (Arial, O'Leary, & Baker, 2006; CDC, 2008; CDC, 2007a; CDC, 2007b; CDC, 2007c; Fleming, Lansky, Lee, & Nakashima, 2006; Reif, Geonnotti, & Whetten, 2006; Thomas 2006).

In Arkansas, particularly in rural counties, the HIV incidence rate is up to 5 times higher among African Americans than among Caucasians, and chlamydia and gonorrhea rates are 12.2 and 20.5 times higher, respectively, than those of Caucasians (Arkansas Department of Health and Human Services Division of Health [ADH], 2008a, ADH, 2008b). Several studies of rural African Americans have found that high frequencies of concurrent sexual partnerships (Adimora, Schoenbach, & Doherty, 2006; Farley, 2006; Thomas, 2006) and a low frequency of condom use (Fleming et al., 2006; Thomas, 2006) contributed to the spread of both HIV and sexually transmitted infections (STI; Timpson et al. 2001).

In addition to escalating rates of STIs and HIV among African Americans, there has been a rapid increase in the use of stimulants (powder and/or crack cocaine, and methamphetamine) among all racial groups in the South (Booth, Leukefeld, Falck, Wang, & Carlson, 2006; Zuniga, Buchanan, & Charkravorty, 2005). It is well documented that the use of crack cocaine and methamphetamine increases the sexual risk of acquiring HIV (Cederbaum, Coleman, Goller, & Jemmott, 2006; Ross, Timpson, Williams, & Bowen, 2003). Individuals under the influence of stimulants were found to be more likely to participate in HIV risk-taking behaviors, such as having multiple sexual partners, trading sex for drugs or other commodities, and foregoing condom use during sexual contact (Cederbaum et al., 2006; Deren, Efthimiou-Mordaunt, Rhodes & Levy, 2002).

Further, African American men who abuse crack cocaine were more likely to use condoms inconsistently during sexual contact (Essien, Meshack, Peters, Ogungbade, & Osemene, 2005). This may have been, in part, because they perceived the threat of acquiring HIV as less of a problem than other threats they faced in their lives (Feist-Price, Logan Leukefeld, Moore, & Ebreo, 2003). In addition, numerous studies have documented that partner type (e.g., primary vs. casual) was a predictor of condom use (Cederbaum et al., 2006; Chatterjee, Hosain, &

Williams, 2006; Gazabon, Morokoff, Harlow, Ward, & Quina, 2007; Timpson et al., 2001) and that condoms were used more inconsistently with primary partners, particularly as trust developed in a relationship (Chatterjee et al., 2006; Hacker, Brown, Cabral, & Dobbs, 2005; Harlow et al., 1999; Lescano, Vazquez, Brown, Litvin, & Pugatch, 2006).

Purpose of the Pilot Study

Very little information is available on HIV risk-taking behaviors among rural African American stimulant users. In a large longitudinal natural history study of stimulant use among rural African Americans in Arkansas, Booth and her colleagues (2006) found that nearly 70% of the sample reported inconsistently using condoms during sexual contact in the previous 30 days, and nearly 50% reported having traded sex for drugs or money at some point during their adult lives. Men were more likely than women to report having multiple sexual partners, trading sex for drugs or money, and not using condoms with their sexual partners (Booth et al., 2006; Wright et al., 2007). However, the natural history study did not examine theory-based predictors of sexual risk, particularly condom use, among its participants. A pilot study to explore these theory-based predictors was, therefore, designed and implemented using a subsample of participants from Booth and colleagues' parent study. The purpose of this pilot study was to (a) determine the stages of change (SOC) for condom use with primary and causal partners among rural African American stimulant users, (b) identify gender differences in variables associated with SOC, and (c) assess the association of the SOC with decisional balance and self-efficacy.

Theoretical Framework

This pilot study used the Transtheoretical Model of Behavioral Change (TTM) developed by Prochaska and DiClemente (1994) as a theoretical framework. The model is best known for its staging paradigm and has been applied to several unhealthy behaviors such as smoking, obesity, drug use, and unprotected sex. The TTM suggests that when an individual changes from an unhealthy behavior to a healthier behavior, he or she progresses through a series of stages (precontemplation, contemplation, preparation, action, and maintenance) using different psychological processes and motivations in the different stages (Adams & White, 2003). Prochaska and DiClemente (1994) viewed the use of the appropriate processes at each stage in the model as a critical predictor of an individual's eventual progression to maintenance. Thus, the TTM has been proposed as a comprehensive model of intentional behavioral change, with several related constructs including self-efficacy and decisional balance to predict how and when an individual would progress to subsequent stages. When this model was applied to condom use, it was postulated that decisional balance and self-efficacy should predict condom use (Prochaska & DiClemente, 1994).

Another important aspect of the TTM is that as individuals progress through the five stages, they may change over time in a cyclic rather than a linear fashion. Thus, as individuals approach changing behavior, it is not unusual for them to relapse to an earlier stage before finally maintaining the new behavior. Therefore, in an effort to help stimulant-using individuals reduce STI and HIV risk-taking behaviors, programs based upon TTM can identify an individual's SOC, and tailored interventions can help the individual move through the SOC to adopt healthier behaviors (Gazabon et al., 2007; Timpson et al., 2001).

TTM Constructs

Two major constructs of the TTM, decisional balance and self-efficacy, are thought to contribute significantly toward moving individuals in the behavioral change process, although they have not received as much attention as the SOC in the literature (Migneault, Adams, & Read, 2005). Migneault et al. (2005) have strongly encouraged more assessments of decisional

balance and self-efficacy in substance-using populations to determine the utility of the TTM with these populations.

Decisional balance

Decisional balance, defined as weighing the pros (advantages) and cons (disadvantages) of changing behaviors, is useful in predicting a person's stage of change (Gazabon et al., 2007; Migneault et al., 2005; Prochaska et al., 1990). In the earlier stages (precontemplation, contemplation, preparation), individuals perceive more disadvantages (cons) to changing behaviors than advantages (pros), while in later or more advanced stages (action and maintenance), individuals perceive more advantages to changing (Grimley, Prochaska, & Prochaska, 1993; Harlow et al., 1999). Changing behaviors involves a personal inventory of the advantages and disadvantages (decisional balance) associated with changing the behavior, and decisional balance has been shown to be a valid predictor of progression through the different stages of change (Gazabon et al., 2007; Grimley et al., 1996; Prochaska & DiClemente, 1983).

Self-efficacy

Self-efficacy is an individual's confidence in his or her ability to accomplish a certain task (Bandura, 1986), for example, the confidence an individual has to engage in a healthy behavior despite interpersonal or situational pressure to do otherwise. Individuals who judge themselves as highly effective expect to successfully perform the behavior even in challenging situations, while those with lower perceived self-efficacy expect unsuccessful performances (Bandura, 1986; Grimley et al., 1993). Those with higher self-efficacy are usually in an advanced SOC (Dancy & Berbaum, 2005; Gullette & Turner, 2004;).

While decisional balance and self-efficacy have been shown to predict the SOC process in adopting condom use in gay and bisexual men (Gullette & Turner, 2004), no research has examined these constructs in relation to condom use among rural African American stimulant users. Even though numerous studies have shown that condom use varies with partner type and that condoms are used more often with a casual partner than with a primary partner (Sanders et al., 2006; Semple, Patterson, & Grant, 2004; Timpson et al., 2001), it is not known whether this is true for this sample of rural African American stimulant users.

Method

Design and Sample

For this descriptive correlational pilot study, potential participants were recruited from an ongoing natural history (non-intervention) study of rural stimulant users from two rural counties in Arkansas that had high concentrations of African Americans and had a high prevalence of stimulant use (Booth et al., 2006). Only those who had given permission to be contacted for future studies during the initial consent process of the natural history study were contacted. Inclusion criteria for the study included: (a) age 18 years or older, (b) self-identification as African American, (c) self-report of using crack cocaine, cocaine hydrochloride, and/or methamphetamine at least once in the previous 30 days, and (d) an address in one of the two rural counties. Individuals who had been in a formal substance abuse treatment program or in a psychiatric treatment program within 30 days prior to the recruitment and those who used stimulants but had not done so in the previous 30 days were excluded from the study. The University of Arkansas for Medical Sciences Institutional Review Board (IRB) approved the protocol for this pilot study.

Booth and colleagues' (2006) natural history study was the parent study for this research. Participants were recruited through respondent driven sampling (RDS). RDS, a variant of

snowball sampling, is effective in recruiting participants from “hidden populations” such as stimulant users (Draus, Siegal, Carlson, Falck, & Wang, 2005; Heckathorn, Semaan, Broadhead, & Hughes, 2002). Using RDS, initial recruits, known as *seeds*, were instructed to give referral coupons to *people like you*. If the person who received a coupon came for an interview and met the eligibility requirements, the “seed” received \$10 (Booth et al., 2006). The new participant was then also given coupons, creating recruitment “waves” to reach more widely into the social networks in the community. One benefit of RDS is that it provides a more representative sample of “hidden populations” than more traditional methods of sampling like snowball or targeted sampling (Heckathorn et al., 2002).

Potential participants were invited to participate in this pilot study, when they were contacted to schedule their next follow-up interview in the natural history study, if they had authorized contact for additional research opportunities. Ninety-nine percent of the 152 natural history study participants who were African American and resided in the two rural counties had provided that authorization. Follow-up rates for the natural history study have consistently been 90% or more. More than 125 eligible participants came for follow-up interviews between April and July 2006 and, of those, 72 were recruited. The 72 participants for this pilot study were identified using a two (male/female) by two (younger: 18–29, older: over 30 years) by two rural counties matrix. The goal was to recruit 9–10 participants per cell with 8 being the minimum per cell. The rationale for this matrix was to achieve gender and age balance based on patterns of drug use and sexual risk that differed by gender and age in the natural history study (Wright et al., 2007).

After participants gave consent to participate in the pilot study, trained interviewers administered the study survey using a computer-assisted personal interviewing (CAPI) method. The CAPI method eliminates literacy requirements for participation, ensures consistent administration of questionnaires across participants, and eliminates the need for separate data entry (Wright et al., 2007). During the administration of the CAPI survey, participants were given the option to *refuse to answer* any question. Interviewers, who were residents of the rural counties, were trained by the investigators to administer the pilot study assessment questionnaire to each participant verbatim, to use neutral probing as appropriate, and to record responses in the computer program. Training for the interviewers took approximately 2 weeks. All interviewers had previously conducted the majority of interviews with participants in the context of the natural history study, increasing the level of trust and comfort between participants and interviewers. Each participant’s interview required 90 to 120 minutes to complete and took place at the study office located in each rural county. All participants were reimbursed \$10 for travel expenses and \$25 for completing the survey. All participants who consented to participate completed the survey.

Measures

Transtheoretical Model (TTM) of Condom Use Measures—The TTM of Condom Use Measure, developed by Grimley et al. (1996) contains 3 subscales: (a) the stages of change, (b) decisional balance, and (c) self-efficacy. SOC for condom use during vaginal, oral, and anal sex was measured separately for primary and casual partners. After determining whether the respondent had a primary and/or casual partner, and what types of sex (vaginal, anal, oral) the respondent had with that partner type, four questions were used to determine the individual’s SOC. In this study, the first two stages of change were defined as (a) not using condoms every time and not planning to start using them every time in the next 6 months (precontemplation); or (b) considering using condoms every time within the next 6 months, but not in the next 30 days (contemplation). The last three SOC were defined as (a) planning to begin using condoms every time within the next 30 days (preparation); (b) having used condoms every time for less than 6 months (action), and (c) having used condoms every time

for 6 months or longer (maintenance). This staging was done separately for primary and casual partners and for oral, vaginal, and anal sex.

For decisional balance, there were 10 questions; 5 questions addressed perceived advantages and 5 questions addressed disadvantages, all on a 5-point Likert-type scale (1 to 5). Some of the items that addressed the advantages of using a condom were: *You would be safe from getting a sexually transmitted disease* and *It protects you or your partner*. Some items that addressed the disadvantages of using a condom were: *It makes sex feel unnatural* and *Your partner would think you did not trust him or her*. Decisional balance was calculated by subtracting the disadvantage score from the advantage score, with possible scores ranging from -20 to +20 and higher scores indicating more perceived advantages than disadvantages in using a condom. Cronbach's alpha for the decisional balance advantages subscale has been reported as 0.81, and 0.83 for the disadvantages subscale, indicating good internal consistency (Grimley et al., 1996).

Self-efficacy was measured by 5 items on a Likert-type scale (1 to 5). Possible scores range from 5 to 25, with higher scores indicating greater self-efficacy for condom use. Items on this scale asked the respondents how confident (1 = *not all confident* to 5 = *extremely confident*) they were that they would be able use a condom every time they had sex with a primary or casual partner in the specific situations. Examples of self-efficacy items include, *When you have been using alcohol or drugs* and *When you think your partner might get mad*. The self-efficacy scale has a reported Cronbach's alpha of 0.89 (Prochaska et al., 1990).

Social and demographic data—Social and demographic data were collected using the natural history study's standard demographic data form. Data included information on age, marital status, sexual orientation, education level, and income.

Data Analysis

We used nQuery Advisor Version 4.0 to calculate power for a 2×2 chi-square test of independence, a 2-sample t-test, linear regression, and logistic regression for our sample of 72. For a 2×2 table, we had greater than 80% power to detect a difference of 15% between groups. In multiple linear regression, adjusting for 4 covariates, we had 80% power to detect an increase of 8% in total R^2 , and in multiple logistic regression we could detect an odds ratio of 2.4 with 70% power.

Because of extremely low cell sizes for oral and anal sex for both partner types, analyses were conducted only for vaginal sex by partner type. Basic psychometric data were compiled for individual scales and subscales. T-tests were performed on continuous variables, and chi-square tests were performed on categorical variables to test for gender differences. Pearson correlation coefficients were calculated along with p -values to look for associations between the response variables and the primary dependent variables. To test the predictors of sexual risk behaviors for both primary and casual sexual partners, a logistic regression model was fit with SOC as the dependent variable, with gender, age, decisional balance, and self-efficacy as independent variables.

Results

A total of 72 participants completed the study; half were women (see Table 1). The mean age of the sample was 32.4 years (range: 18–58), 6.9% ($n = 5$) were married, 1.4% ($n = 1$) widowed, 8.3% ($n = 6$) separated, 12.5% ($n = 9$) divorced, 61.1% ($n = 44$) never married, and 9.7% ($n = 7$) living with a partner. In terms of education, 60% ($n = 36$) had less than a high school education, 2.78% had a GED, 38.89% ($n = 28$) graduated from high school, and 8.33% ($n = 6$) indicated they had some college. The majority reported an annual income of less than \$5,000.

In the previous 30 days, 38.9% ($n = 28$) had used crack only, 45.8% ($n = 33$) had used powder cocaine only, and 15.3% ($n = 11$) had used both powder and crack cocaine. The majority ($n = 67$, 93.06%) of the participants identified their sexual preference orientation as heterosexual, four 4 (5.56%) as bisexual, and one 1 (1.39%) as homosexual. Approximately 50.0% Half ($n = 36$) indicated that they had only a primary sex partner; 26.4% ($n = 19$) had only casual partners, and 23.6% ($n = 17$) had both a primary and casual partners. Also, 73% ($n = 53$) indicated they participated in vaginal sex, 2.7% ($n = 2$) participated in anal sex, and 24% ($n = 17$) in oral sex with a primary partner.

Stages of Change for condom use with primary and casual partners (N = 72)—

For condom use with a primary partner, 44.4% ($n = 32$) of participants were in precontemplation, 6.9% ($n = 5$) in contemplation, 2.7% ($n = 2$) in preparation, and 16.6% ($n = 12$) in maintenance. No one was in the action stage for using a condom with a primary partner. For a casual partner, 6.9% ($n = 5$) of participants were in precontemplation, 2.8% ($n = 2$) in contemplation, 2.8% ($n = 2$) in preparation, 8.3% ($n = 6$) in action, and 29.2% ($n = 21$) in maintenance.

Stages of Change for condom use by gender and partner type—There were similarities in the stages of change for men and women with casual partners. The majority of the men and women were in the precontemplation stage for using a condom with a primary partner and were in the maintenance stage with a casual partner (see Table 2).

Precontemplation to preparation (inconsistent) versus action to maintenance (consistent) Stage of Change for condom use—

To increase cell size for this pilot study, the SOC variable was collapsed from 5 to 2 categories. The distribution across stages before collapsing (see Table 2) showed that participants tended to cluster in precontemplation, contemplation, and maintenance stages, with precontemplation being the largest in the primary partner group. The distribution across stages with casual partners clustered in precontemplation, action, and maintenance, with maintenance being the largest in the casual partner group. Very few of the participants were in the preparation or action stage in the primary partner group; very few were in the contemplation or preparation stage in the casual partner group. Although the first two SOC differ in terms of intent to change behavior (in precontemplation, the individual has no intention to change and in contemplation the individual is thinking about changing), neither implies immediate intention to change behavior. Therefore we, categorized SOC into *inconsistent condom use* made up of the precontemplation, contemplation, and preparation stages, coded as 0, and *consistent condom use* made up of action and maintenance stages, coded as 1. Action and maintenance were combined to represent sustained change even though the time-periods are different.

After re-coding the SOC into categories of inconsistent and consistent condom use, more than three fourths (77%, $n = 41$) of the participants reported being in an SOC representing inconsistent condom use with a primary partner, and only 23% ($n = 12$) were in an advanced SOC for consistent condom use with their primary partner. In contrast, 75% ($n = 27$) of the participants indicated that they were in an advanced SOC for consistently using condoms with casual partners (see Table 2).

Correlations Between SOC, Decisional Balance, and Self-Efficacy

Pearson R correlations were calculated to examine the relationships between age, decisional balance, self-efficacy, and the stages of change for condom use with primary and casual sexual partners. For primary partners, there was a significant positive correlation between advanced SOC and decisional ($r = 0.27$, $p = 0.05$), and advanced SOC and self-efficacy ($r = 0.56$, $p < 0.0001$), but not between SOC and age ($r = 0.26$, $p = 0.06$). For casual partners, there was a

significant positive correlation between the advanced stage SOC and self-efficacy ($r = 0.55$, $p = 0.0005$), but no significant correlations were found between advanced SOC and decisional balance ($r = .036$, $p = .83$) or age ($r = 0.033$, $p = 0.84$) as shown in Table 3. A significant correlation was found between decisional balance ($r = 0.31$, $p = 0.01$) and self-efficacy for casual partners.

Cronbach's alphas were calculated for self-efficacy and the two components of decisional balance (perceived advantages and disadvantages), since these measures had rarely, if ever, been used with rural African American stimulant users. For primary partners, Cronbach's alpha for perceived advantages was 0.90 and 0.82 for perceived disadvantages. For casual partners, Cronbach's alpha for perceived advantages was 0.90, and 0.91 for perceived disadvantages. Cronbach's alpha for self-efficacy was 0.93 for primary partners, and 0.95 for casual partners. These scores reflect good to excellent internal consistency for this population.

Gender Differences

A chi-square test was used to examine gender differences in SOC, decisional balance, and self-efficacy. There were no significant differences between the proportion of women and men in the inconsistent use SOC or the consistent use SOC for primary ($X^2 = 0.006$, $p = 0.941$) or casual ($X^2 = 0.5973$, $p = 0.439$) partners. There were also no significant differences between men and women on decisional balance or self-efficacy in using a condom with a primary partner. However, women with casual partners scored significantly higher on decisional balance ($X^2 = 5.9028$, $p < 0.014$) and self-efficacy ($X^2 = 4.0533$, $p < 0.044$) than men.

T-tests were used to examine gender differences in age, decisional balance, and self-efficacy for primary and casual partners (see Table 4). Men and women did not differ significantly in age, reflecting the sample strategy to achieve balance on these demographic variables. Men and women also did not differ significantly in self-efficacy for condom use with a primary partner; however, women had higher self-efficacy scores for condom use with casual partners ($t = 2.22$, $p = 0.03$). There were also significant differences between men and women in decisional balance with both the primary partner ($t = 2.43$, $p = 0.02$) and casual partners ($t = 2.29$, $p = 0.03$). Women had higher decisional balance scores for using condoms with both types of partners (see Table 4).

Regression Analysis: Predicting Consistent Condom Use and SOC

A logistic regression model was used to estimate the odds ratio for advanced SOC (reflecting consistent condom use) with a primary or casual sexual partner in this sample. Four independent variables were included: (a) gender, (b) age, (c) decisional balance, and (d) self-efficacy. Gender was coded as female = 0 and male = 1. Decisional balance, self-efficacy, and age were all continuous variables. The overall predictive model was significant for advanced SOC for condom use with both primary partners (model $X^2 = 24.27$, $p < 0.0001$) and for condom use with casual partners (model $X^2 = 11.06$, $p = 0.026$).

For primary partners, three independent variables were significantly associated with advanced SOC for condom use (see Table 5): decisional balance, self-efficacy, and age. The odds of having an advanced SOC for condom use increased 18% as age increased by 1 year ($p < 0.05$). The odds of having an advanced SOC for condom use increased 43% as self-efficacy scores increased by one point ($p < 0.005$), and increased by 28% as decisional balance scores increased by one point ($p < 0.05$).

In contrast, only one independent variable, self-efficacy, was significantly associated in the regression models for advanced SOC for condom use with casual partners (see Table 5). The

odds of having an advanced SOC for condom use with casual partners increased 26% as the score on the self-efficacy measure increased by one point ($p < 0.01$).

Discussion

The findings in this pilot study provided important information about condom use with primary and casual partners among a sample of sexually active rural African American stimulant users. The general pattern of condom use with primary and casual partners was similar to what other studies have reported (Chatterjee et al., 2006; Lescano et al., 2006; Pallonen, Timpson, Williams, & Ross, 2009; Timpson et al., 2001) in that our sample was more likely to report consistent condom use with casual partners than with primary partners. This provides evidence that rural African American stimulant users in Arkansas are similar to other drug using populations in terms of this particular pattern of sexual risk behaviors.

This result raises similar concerns as those raised in other studies about inconsistent condom use with primary sex partners (Banikarim, Chacko, Wiemann, & Smith, 2003; Gazabon, et al., 2007; Harlow et al., 1999; Migneault et al., 2005; Timpson et al., 2001), particularly as trust developed in a relationship (Bauman & Berman, 2005; Bowen, Williams, McCoy, & McCoy, 2001). The fact that more than three fourths of the participants in this study reported inconsistent condom use with a primary partner suggested an urgent need to design interventions to reduce risky sexual behaviors, particularly because many of these individuals reported having casual sexual partners in addition to a primary partner. More qualitative work is needed to explore the reasons for inconsistent condom use that could be related to a variety of intrapersonal, interpersonal, and social factors (e.g., denial of personal risk, desire to avoid relationship conflicts, or competing priorities such as reproduction or perceived intimacy associated with unprotected sex).

More of the participants were in a more advanced SOC for condom use with casual partners, a finding that was also consistent with other studies (Chatterjee et al., 2006; Lescano et al., 2006; Timpson et al., 2001). This finding suggested that individuals were aware of the risks associated with unprotected sex and, with less known partners, felt it was important to take appropriate precautions. Interestingly, the rate of consistent condom use regardless of partner type was much higher (18% – 43%) in our sample of male cocaine users than in other reports. For example, Pallonen et al. (2009) reported that only 10% of the sample in their study of cocaine using African American men consistently used condoms with their partners.

The comparatively high rate of condom use in our sample was encouraging and may have suggested the existence of at least some health-promoting peer norms that would support interventions to further increase condom use. Of note, Pallonen et al.'s (2009) sample was primarily urban cocaine users, whereas our sample was entirely rural. This rural-urban difference has been described inconsistently in the scientific literature; some (e.g., Crosby, Yarber, DiClemente, Wingood, & Meyerson, 2002) have suggested that rural individuals, especially women, were more likely to be at increased risk, where others (e.g., Brown, Smith, & Hill, 2007) have been more optimistic that rural residents do engage in significant amounts of risk-reduction behavior. Additional qualitative research to understand the social and cultural factors that may drive some of these differences would be particularly helpful.

Women scored significantly higher on decisional balance with a primary partner than men ($m = 9.2$ vs. $m = 5.4$, respectively), suggesting that the women perceived more advantages in using a condom with a primary partner than did men. Other studies have reported that condom use with a primary partner was influenced by the partner's attitude and desire to use one (Pallonen, Williams, Timpson, Bowen, & Ross, 2008; Lescano et al., 2006; Ross et al., 2003) Women may have been more likely to suspect their primary partner of having other

sexual partners or may be more invested in condom use as a contraceptive approach. However, further investigation is needed with the minority of women who do report consistent condom use with their primary partners to understand these issues more fully.

Women with casual partners scored significantly higher on decisional balance and self-efficacy than men. One potential reason for the difference is that women may perceive greater risks associated with unprotected sex with a casual partner and, therefore, perceive more advantages to condom use with these partners. Social norms may also have been more encouraging of condom use with casual partners, which could support self-efficacy; however, these possibilities should be explored further, perhaps in qualitative work with this population.

Several variables were associated with consistent condom use. Decisional balance, self-efficacy, and age predicted consistent condom use with a primary partner. The associations of decisional balance and self-efficacy with advanced SOC for condom use provided further validation of the utility of the TTM in this vulnerable population. There was an 18% increase in condom use as individuals became older, which was a somewhat unexpected finding. Other studies have found that younger people were more likely to use a condom with a primary partner (Chatterjee et al., 2006; Dancy & Berbaum 2005; Ross et al., 2003; Timpson et al., 2001), particularly if the partner desired to use one (Gazabon, et al., 2007). It was possible that the general attitude toward condom use was more positive than we had previously thought given that our sample was relatively young ($M = 32$ years). We did observe a 28% and 43% increase in the likelihood of condom use as scores on decisional balance and self-efficacy, respectively, increased by one point. Although our findings were cross-sectional and thus interpretations of directionality, this finding provided support for the development of interventions that would promote advantages of and increase self-efficacy in condom use.

Implications for Practice

Self-efficacy was most strongly associated with advanced SOC for using condoms with both a primary and casual partner. Other studies have also found that having greater perceived self-efficacy for condom use played a vital role in the decision to use one (Bowen et al., 2001; Naar-King et al., 2006) and demonstrated an individual's readiness to change behavior (Bowen et al., 2001; Semple et al., 2004). Therefore, practitioners need to encourage consistent condom use with primary partners as well as with casual partners, particularly because a large number admitted to having both types of sexual partners. Exploring perceived barriers to condom use with primary partners and identifying ways to increase perceived benefits of condom use with primary partners may be an important part of a sexual risk counseling session that practitioners could conduct with their patients.

Practitioners need to explore, in a supportive and nonjudgmental manner, their patients' involvement in non-monogamous relationships, active drug use, and (for those who are actively using drugs) any increase in risk behaviors, including trading of sex for drugs or other commodities. Further, practitioners should continue to educate individuals about the symptoms of STIs and HIV and encourage all sexually active adults to be tested for STIs, including HIV.

Limitations

There were several limitations in this pilot study. The sample ($N = 72$) was small and was a convenience sample from an existing natural history (parent) study. However, the parent study is highly representative of the study counties (Booth et al., 2006). Although we used various approaches to reduce reporting bias in the results, including CAPI interviewing with trusted community members as interviewers and using strong rapport-building techniques, there is always at least some unreliability in self-report measures. However, our main study measures were found to be reliable (alphas = .82 to .95) in this sample. Because of the small sample size,

equal representation in each SOC was not obtained, requiring stages to be collapsed into two categories. This technique has been used successfully in other studies that have documented difficulties in recruiting individuals for each SOC (Hacker et al., 2005; Migneault et al., 2005). Results of this study should not be generalized to all African American stimulant users because of these limitations.

Recommendations for Future Study

Designing tailored interventions to reach those in each SOC for condom use may help move individuals more quickly toward maintenance of consistent condom use behaviors. In particular, interventions are needed to help individuals strengthen their self-efficacy to negotiate safer sexual practices. This goal requires guided practice, corrective feedback, and social support. Such interventions may have more of an impact on reducing sexual risk-taking behaviors because of the skills and social reinforcement that participants gain from practice. Also, understanding how decisional balance operates in stimulant-using populations would help design interventions that support healthy decision-making using issues or concerns that are relevant to the lives of people in these communities.

Future studies should include a more diverse sample of African American stimulant users in terms of sexual orientation, since most identified themselves as heterosexual. Also, future studies with rural populations of stimulant users should explore other variables related to HIV risk behaviors such as a history of incarceration, number of sex partners who inject drugs, prior history of STIs, trading sex for other commodities, and social and financial barriers. As interventions are developed to promote condom use in these populations, these interventions should be tested, using established clinical trial methods and incorporating community-based principles. Interventions could either focus more on individuals in earlier SOC since they perceive more barriers to behavior change and may need significant support to develop self-efficacy for condom use, or focus on supporting those in the action SOC to maintain less risky behaviors, since increased condom use on a community-wide basis could ultimately change overall community norms.

Gender-specific focus groups may be useful in exploring attitudes about sexual risk-taking behaviors with different types of sexual partners, and in exploring how drug addiction drives sexual risk-taking behavior. Understanding the intrapersonal, interpersonal, and social influences on sexual risk behavior in this population would support the development of more culturally relevant (and therefore more acceptable) interventions for this population, which may have reasonable initial mistrust of intervention programs. It may be helpful to consider recruiting active stimulant users to become members of a community advisory board to help program developers design interventions that are culturally appropriate for these high-risk groups.

Conclusions

This pilot study, to our knowledge, is the only one that has applied the TTM to rural African American active stimulant users. In our study, differences between men and women in the TTM variables of decisional balance and self-efficacy pointed to a need for tailored interventions aimed at reducing sexual risk-taking behaviors. Clearly, interventions must address the very different dynamics in casual versus primary sexual relationships and must foster increased positive attitudes and self-efficacy for condom use, especially with primary partners.

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Table 2

Stages of Change (SOC) For Condom Use, Partner Type, and Gender

Gender	SOC	Primary <i>n</i>	%	Casual ^a <i>n</i>	%
Men	Precontemplation	15	57.7	3	18.8
	Contemplation	3	11.5	1	6.3
	Preparation	2	7.7	1	6.3
	Action	0	0.0	2	12.5
	Maintenance	6	23.1	9	56.3
	Total	26	100.0	16	100.0
	Inconsistent ^b	20	76.9	5	31.2
	Consistent ^c	6	23.1	11	68.7
	Women	Precontemplation	18	66.8	2
Contemplation		3	11.1	1	5.0
Preparation		0	0.0	1	5.0
Action		0	0.0	4	20.0
Maintenance		6	22.2	12	60.0
Total		27	100.0	20	100.0
Inconsistent		21	77.8	4	20.0
Consistent		6	22.2	16	80.0

Note. Items not responded to resulted in missing data.

^a some had both a casual and primary partner

^b inconsistent = SOC ≤ 3 including precontemplation, contemplation, action coded as zero (0)

^c consistent = SOC > 3 including action and maintenance coded as 1.

Table 3

Correlations Between Stage of Change (SOC), Decisional Balance, Self-Efficacy, and Age By Partner Type

	Decisional Balance	Self-Efficacy	Age
Primary Partner			
SOC > 3 ^a	0.27 *	0.56 **	0.26
Decisional Balance		0.19	-0.06
Self-Efficacy			-0.04
Casual Partners			
SOC > 3	0.04	0.55 ***	0.03
Decisional Balance		0.31 *	-0.04
Self-Efficacy			0.06

Note. Items not responded to resulted in missing data for some items.

^aStages of Change greater than 3 = consistent condom use (action-maintenance) coded as 1.

*
 $p < 0.05$

**
 $p < 0.0001$

 $p = 0.0005$

Means, Standard Deviations and *t*-Test Results for Decisional Balance and Self-Efficacy By Gender

Table 4

Variables	Women		Men		<i>t</i>	<i>p</i>
	<i>m</i>	<i>SD</i>	<i>mSD</i>			
Decisional Balance ^a	9.23	7.40	5.425.71	2.43	0.018*	
Self-efficacy ^b	15.2	8.95	15.358.99	-0.06	0.954	
Decisional Balance	10.29	8.05	6.186.71	2.29	0.025*	
Self-efficacy	22.55	5.65	18.648.43	2.22	0.030*	

* *Note.* Two-tailed *p* value < 0.05, *df* = 69

^a decisional balance potential ranged from +20 to -20

^b self-efficacy potential ranged from 5 to 25

Logistic Regression for Stage of Change^a Condom Use With Primary and Casual Partners (N = 72)

Table 5

Variables	B	SE	Wald	OR	CI ^b	P
Primary Partner						
Gender ^c	-1.31	0.73	3.23	0.07	(0.004, 1.27)	0.07
Age ^d	0.16	0.08	4.59	1.18	(1.01, 1.36)	0.03*
Self-efficacy ^d	0.31	0.11	7.96	1.37	(1.10, 1.84)	0.005**
Decisional Balance ^d	0.25	0.12	4.21	1.28	(1.01, 1.63)	0.04*
Casual Partner						
Gender	0.03	0.55	0.004	1.07	(0.125, 9.18)	0.95
Age	-0.02	0.04	0.26	0.98	(0.90, 1.06)	0.62
Self-efficacy	0.23	0.09	6.63	1.26	(1.06, 1.49)	0.01***
Decisional Balance	-0.15	0.09	2.43	0.86	(0.71, 1.04)	0.11

^aNote. Stage of change for consistently using a condom = action or maintenance coded as 1

^bCI = 95% confidence interval

* p < 0.05

** p < 0.005

*** p < 0.01

^cfemale = 0, male = 1

^dOdds ratio are for one unit increases in age, self-efficacy, and decisional balance.