Distribution Agreement

In presenting this thesis or dissertation as a partial fulfillment of the requirements for an advanced degree from Emory University, I hereby grant to Emory University and its agents the non-exclusive license to archive, make accessible, and display my thesis or dissertation in whole or in part in all forms of media, now or hereafter known, including display on the world wide web. I understand that I may select some access restrictions as part of the online submission of this thesis or dissertation. I retain all ownership rights to the copyright of the thesis or dissertation. I also retain the right to use in future works (such as articles or books) all or part of this thesis or dissertation.

Signature:

_____ _____

Clare J. Cene-Kush Date

Social Cognitive Correlates of HIV-associated Sexual Risk Behavior

Among African-American Adult Women

By

Clare J. Cene-Kush

MPH

Behavioral Sciences and Health Education

Jessica Sales, Ph.D.

Committee Chair

Julia Painter, MPH, Ph.D.

Committee Member

Michael Windle, Ph.D.

Department Chair

Social Cognitive Correlates of HIV-associated Sexual Risk Behavior Among African-American Adult Women

By

Clare J. Cene-Kush

B.A.
Vassar College
2010

Thesis Committee Chair: Jessica Sales, Ph.D.

An abstract of
A thesis submitted to the Faculty of the
Rollins School of Public Health of Emory University
in partial fulfillment of the requirements for the degree of
Master of Public Health
in Behavioral Sciences and Health Education
2012

Abstract

Social Cognitive Correlates of HIV-associated Sexual Risk Behavior
Among African-American Adult Women
By Clare J. Cene-Kush

Purpose: African American adult women are disproportionately burdened by sexually-transmitted infections (STIs) including HIV/AIDS. Guided by Social Cognitive Theory, this study investigated the association of individual- and environmental-level factors with HIV-associated sexual risk behavior among a low-income, high-risk sample of adult African American women. **Methods**: A secondary analysis of data collected for the cross-sectional HVARC study was performed to determine relationships between salient social cognitive constructs and the outcome variables: number of lifetime vaginal sex partners, frequency of vaginal sex in the previous 30 days, and consistent condom use. Participants were African American adult females (N = 321, mean age = 27.4) recruited from a family planning clinic in Atlanta, GA who completed an audio-computer assisted self-interview. **Results**: Results demonstrated a high prevalence of inconsistent condom use and history of positive STI test result. In hierarchical linear regression analyses, greater self-efficacy for refusal of sexual intercourse (an individual-level factor) was associated with reporting fewer lifetime vaginal sex partners and peer norms supportive of high-risk sexual behavior (an environmental-level factor) was associated with reporting a greater number lifetime vaginal sex partners. Relative to the environmental-level determinant, peer norms, the individual determinant self-efficacy for sex refusal accounted for a greater amount of the variance in number of lifetime vaginal sex partners. Self-efficacy for partner communication and future orientation were not significantly associated with sexual risk behavior. **Conclusions**: Results of this cross-sectional study indicate that the efficacy of culturally-tailored, gender-specific STI/HIV prevention programs for African American adult women may be improved via the inclusion of components which increase self-efficacy for sex refusal and target peer norms regarding sexual behavior. Future studies should prospectively examine the relationship between self-efficacy for sex refusal, peer norms supportive of unsafe sex and sexual risk behavior among this high-risk group.

Social Cognitive Correlates of HIV-associated Sexual Risk Behavior Among African-American Adult Women

By

Clare J. Cene-Kush

B.A.
Vassar College
2010

Thesis Committee Chair: Jessica Sales, Ph.D.

A thesis submitted to the Faculty of the
Rollins School of Public Health of Emory University
in partial fulfillment of the requirements for the degree of
Master of Public Health
in Behavioral Sciences and Health Education
2012

Acknowledgments

I would like to thank Dr. Jessica Sales, my thesis chair, for her continual support and guidance throughout the thesis process. I would also like to thank Dr. Julia Painter, my committee member, for allowing me to be involved with the HVARC study throughout my time in graduate school. The mentorship I've received from my committee members is invaluable and will continue to guide my career in public health.

I would also like to thank Dr. Carrie Cwiak, director of the Grady Hospital Family Planning Clinic, for her assistance in facilitating recruitment and data collection. I am especially grateful to the clinical and administrative staff of the Grady Hospital Family Planning Clinic for embracing the project and assisting with various aspects of recruitment and data collection. Additionally, I would like to thank the Emory University Center for AIDS Research for providing funding for the HVARC study.

I would also like to thank my family and friends for their love and support throughout the thesis process. I am particularly thankful to my parents, Beth and Frank, for the encouragement they have provided throughout my academic career.

Finally, I would like to thank all of the women who so graciously shared their time and experiences with us in order to improve sexual health outcomes for future generations.

Table of Contents

Chapter 1: Introduction

Problem Definition

In 2010, it was estimated that more than one million people in the United States were HIV-infected, with over 56,000 new infections occurring each year (CDC, 2010a; Hall et al., 2008). Despite representing only 14% of the total U.S. population, African Americans accounted for nearly half (44%) of all current and new HIV infections in 2009(CDC, 2011b). The Centers for Disease Control and Prevention (CDC) has labeled the HIV/AIDS epidemic among African Americans a "crisis," calling for a "heightened national response," and prioritizing the development of effective HIV prevention interventions (CDC, 2007).

African American women are disproportionately affected by HIV/AIDS. The incidence of HIV among African American women is fifteen times the incidence among white women and one in thirty-two African American women will be diagnosed with HIV during her lifetime (CDC, 2011c; Hall, An, Hutchinson, & Sansom, 2008). In 2006, HIV was the third leading cause of death among African American women aged 35 to 44, and the fourth leading cause of death among African American women aged 25 to 34 (Heron et al., 2009). High-risk heterosexual intercourse, or sex with a male partner at high-risk for HIV infection, is the main pathway through which African American women become infected (CDC, 2007). In 2009, such high-risk contact was responsible for approximately 85% of HIV diagnoses among this demographic (CDC, 2011b) . African American women are also more likely to be infected with other sexually transmitted infections (STIs) (CDC, 2006), such as chlamydia and gonorrhea, which increase both the risk of becoming HIV-infected and the risk of transmitting HIV to others (CDC, 2011a,

2011b; Risser et al., 2005). Thus, there is a clear need to identify factors associated with sexual risk behavior among African American women. Identified behavioral risk and protective factors will contribute to current research to improve culturally-sensitive and gender-specific STI/HIV risk reduction interventions for this population.

Reviews of STI/HIV prevention programs for African American women indicate that the use of health behavior theory is a key component of efficacious programs. For example, Albert Bandura's Social Cognitive Theory (SCT) has been widely employed as an explanatory model of sexual decision-making and as a framework for structuring STI/HIV prevention interventions (Bandura, 2004; R. J. DiClemente & Peterson, 1994; McAlister, Perry, & Parcel, 2008; Mize, Robinson, Bockting, & Scheltema, 2002). Prevention programs based on SCT have been shown to reduce sexual risk behaviors and STI incidence among African American women (Crepaz et al., 2009; Jemmott, Jemmott, Hutchinson, Cederbaum, & O'Leary, 2008).

Theoretical Framework

According to Social Cognitive Theory, human behavior exists in a dynamic interaction with individual and environmental factors (Bandura, 1986). We can apply this interpersonal model of health behavior to understand how personal and environmental factors influence sexual behaviors that increase the risk of STIs, including HIV infection, among African American women. When analyzed from the perspective of SCT, the knowledge and skills required to undertake protective health behaviors are considered necessary but insufficient to change behavior (Bandura, 1982; Wulfert & Wan, 1993) . Rather than a direct result of knowledge or skill, behavior results from an individual's subjective evaluation. This evaluation is influenced by outcome expectancies, social norms, and prior experiences which together result in a person's

judgment about his or her ability to act a certain way in a given situation (Bandura, 2004). While SCT is a broad theory of health behavior that encompasses many individual and environmental constructs, some constructs have emerged as particularly useful in examining HIV-risk among African American women and constructing effective interventions to reduce this risk. These salient constructs include self-efficacy for various safer sex behaviors, future orientation and peer norms surrounding sexual behavior.

SCT: Individual Determinants

Self-efficacy

Self-efficacy, or a person's confidence in his or her ability to perform a specific behavior that results in a desired outcome, is a key construct of SCT (Bandura, 2004). According to Bandura, self-efficacy affects multiple facets of behavior change including: whether or not someone considers changing a health behavior, the amount of motivation they will experience once they decide to do so, their ability to overcome setbacks, and their ability to maintain the behavior over an extended period of time (2004). Thus, higher self-efficacy for a given behavior is associated with a greater likelihood of engaging in that behavior (Bandura, 1982). Research exists on the association between various forms of self-efficacy, such as self-efficacy for partner communication or abstinence, and sexual risk behavior among African American female adolescents (R. Crosby et al., 2011a; Ralph J. DiClemente & Lodico, 1996; Jemmott Iii, Jemmott, Spears, Hewitt, & Cruz-Collins, 1992; Romero, Galbraith, Wilson-Williams, & Gloppen, 2011; Sionéan et al., 2002) and, to a lesser extent, African American adult women (Dancy & Berbaum, 2005; O'Leary, Jemmott, & Jemmott, 2008; Raiford, Wingood, & DiClemente, 2007). A recent review of behavioral STI/HIV prevention programs for African

American women found that efficacious programs focused on increasing self-efficacy for protective behavior, further demonstrating the significance of this social cognitive construct (Crepaz, et al., 2009).

Research suggests that self-efficacy for partner communication, or a woman's perceived confidence in her ability to communicate with her male partner about safer sex practices, sexual history and concurrent partnerships may be an important correlate of safer sex behavior among African American adult women. To date, most research exploring the association of partner communication self-efficacy and sexual risk or protective behaviors has been conducted with adolescent (Catania et al., 1989; Ralph J. DiClemente & Lodico, 1996; DiIorio et al., 2001; Roye, 1998; Sionéan, et al., 2002) or college-based samples (DiIorio, Dudley, Lehr, & Soet, 2000; Zamboni, Crawford, & Williams, 2000) and has demonstrated a significant association between self-efficacy for partner communication and consistent condom use. However, findings from these studies, all of which are cross-sectional and based on convenience samples, may not be generalizable to African American adult women, especially those who vary in other key factors from these samples (e.g. socioeconomic status, educational attainment) . Of the three studies that have focused on self-efficacy for partner communication among adult women, only two have focused specifically on African American women. One study is difficult to interpret because it employed a brief and ambiguous measure of self-efficacy, defined as "comfort with partner communication," which did not reach an acceptable level of internal consistency (St. Lawrence et al., 1998). A more recent study among HIV-positive African American women demonstrated that women with higher self-efficacy for partner communication were significantly more likely to be consistent condom users compared to women with low self-efficacy (Raiford, et al., 2007). Furthermore, only one study has investigated the association of self-efficacy for

partner communication with a sexual behavior other than condom use, such as multiple sexual partners (Catania, et al., 1989). Thus, further research concerning the relationship between self-efficacy for partner communication and various sexual risk behaviors among adult African American women is warranted.

Self-efficacy for sex refusal, or a woman's perceived ability to refuse sexual intercourse in a variety of situations, is another form of self-efficacy found to be associated with sexual risk and protective behaviors in a number of studies. Similar to self-efficacy for partner communication, most studies considering self-efficacy for sex refusal in relation to sexual risk-taking outcomes have been conducted with mixed-gender, school-based samples (Cecil & Pinkerton, 1998; DiIorio, et al., 2001; Kasen, Vaughan, & Walter, 1992). Studies investigating the relationship between self-efficacy for sex refusal and sexual risk behavior among African American women are limited to adolescent or young adult samples and, to date, exclusively consider consistent condom use as the outcome of interest (R. A. Crosby et al., 2011b; G M Wingood & Diclemente, 1998a). Despite the limited generalizability of previous studies to African American adult women, research suggests that greater levels of self-efficacy for sex refusal are correlated with consistent condom use as well as fewer lifetime sexual partners. In sum, a more thorough understanding of the relationship between these two forms of self-efficacy and sexual risk among low-SES African American adult women would provide useful information for the development or refinement of HIV prevention programs for this high-risk group.

Future Orientation

Time orientation is conceptualized as "the predominant cognitive, affective, and behavioral orientation to the past, present, or future" (Burns & Dillon, 2005, p. 175). In other words, motivation to perform a certain behavior, such as the consistent use of condoms, is partially determined by whether someone gives preference to present or future goals and outcomes (Crockett, Weinman, Hankins, & Marteau, 2009). Such preferences are conceptualized as the stable personal characteristics of present orientation or future orientation, respectively. Future orientation is considered the time orientation with the greatest impact on the motivation of current behavior (Burns & Dillon, 2005) . According to social cognitive theorist Albert Bandura, future time orientation—like self-efficacy— plays an important role in motivating behavior, "By being cognitively represented in the present, conceived future states are converted into current motivators and regulators of behavior"(1997, p. 122). Future orientation is generally conceptualized as the degree to which individuals maintain a clear perspective on their future. This includes the perception of personal control over future outcomes, of the possibility of achieving desirable future outcomes, and an understanding that present actions affect future outcomes.

HIV-protective health behaviors are characterized by present action, (e.g. demanding that a partner use a condom) for the purpose of future gain (e.g. absence of HIV infection). Therefore, African American women demonstrating relatively higher levels of future orientation, and thus greater concern with future outcomes, are expected to engage in fewer sexual risk behaviors. Previous research demonstrating the association of higher levels of future orientation with decreased sexual risk behaviors among adjudicated adolescents (Robbins & Bryan, 2004) and African American undergraduate students (Burns & Dillon, 2005) supports this hypothesis.

In contrast, research with heterosexual undergraduate samples not limited to African American participants has found that the association between positive future orientation and sexual behavior is exclusive to males (Agnew & Loving, 1998; Rothspan & Read, 1996). Given that the majority of research has focused on low-risk college-aged samples, there is a need to investigate the relationship between positive future orientation and sexual risk behavior among high-risk populations, including samples of low-SES African American adult women.

SCT: Environmental Determinants

Peer Norms

In addition to self-efficacy, Social Cognitive Theory posits that peer norms are an important determinant of behavior. According to SCT, environmental factors can be a powerful influence on individual behavior (Glanz, Rimer, & Viswanath, 2008). Peer norms, or the salient beliefs of important and alike people in an individual's environment, are a key environmental factor that influences behavior. As Bandura states, "personal change occurs within a network of social influences" (Bandura, 1994, p. 13) . According to the construct of reciprocal determinism, there is a bi-directional relationship between peer norms (environmental determinants) and personal characteristics (individual determinants). For example, if a woman perceives that the majority her of friends consistently use condoms this will likely shape her individual expectations of, and beliefs about, condom usage. At the same time, the perceptions of peers can be changed by a woman's individual beliefs and expectations via modeling and social persuasion. Social norms, particularly the normative beliefs of peers, have been found to influence sexual behavior among African American adolescent females (Richard A. Crosby et

al., 2003; Richard A. Crosby et al., 2000; Ralph J. DiClemente & Lodico, 1996) and adult women (Dancy & Berbaum, 2005; Raiford, et al., 2007; Sikkema et al., 1996).

Purpose of the Study

Little is known about the direct effects of self-efficacy for partner communication, self-efficacy for sex refusal and positive future orientation on sexual risk behavior among African American adult women. Given the theoretical association of these individual-level determinants with decreased sexual risk behavior, and the critical need to address STI/HIV incidence among African American women, this represents a key gap in empirical knowledge which this study aimed to address. The purpose of the present study was to examine the direct effect of three hypothesized, individual-level determinants of behavior, (1) self-efficacy for partner communication, (2) self-efficacy for sex refusal and (3) positive future orientation and one hypothesized environmental-level determinant of behavior, (4) peer norms supportive of high-risk sexual behavior, on sexual risk behavior (number of lifetime vaginal sex partners, frequency of vaginal sex in previous 30 days, and consistent condom use) among adult African American women. Guided by Social Cognitive Theory, the present study also tested the relative contribution of individual- and environmental-level variables to sexual risk by comparing the relative effects of self-efficacy for communication, self-efficacy for sex refusal, positive future orientation, and peer norms supportive of high-risk sexual behavior on sexual behavior (Figure 1). To address this knowledge gap, data from 321 African American women between the ages of 18 and 54 who were seeking sexual and reproductive health services at the Grady Hospital Family Planning Clinic in Atlanta, Georgia were analyzed.

Research Questions and Hypotheses

Question 1: Is there a significant relationship between self-efficacy for partner communication and sexual risk behavior (number of lifetime vaginal sex partners, frequency of vaginal sex in previous 30 days, consistent condom use) among African American adult women?

- **Hypothesis 1**: Greater self-efficacy for partner communication will be negatively associated with sexual risk behavior among African American adult women.

Question 2: Is there a significant relationship between self-efficacy for sex refusal and sexual risk behavior (number of lifetime vaginal sex partners, frequency of vaginal sex in previous 30 days, consistent condom use) among African American adult women?

- **Hypothesis 2**: Greater self-efficacy for sex refusal will be negatively associated with sexual risk behavior among African American adult women.

Question 3: Is there a significant relationship between positive future orientation and sexual risk behavior (number of lifetime vaginal sex partners, frequency of vaginal sex partners in previous 30 days, consistent condom use) among African American adult women?

- **Hypothesis 3**: Greater positive future orientation will be negatively associated with sexual risk behavior among African American adult women.

Question 4: Is there a significant relationship between peer norms supportive of high-risk sexual behavior and sexual risk behavior (number of lifetime vaginal sex partners, frequency of vaginal sex partners in previous 30 days, consistent condom use) among African American adult women?

- **Hypothesis 4:** Greater peer norms supportive of unsafe sex will be positively associated with sexual risk behavior among African American adult women

Question 5: What are the relative contributions of individual-level determinants (self-efficacy for partner communication, self-efficacy for sex refusal, and positive future orientation) and the environmental-level determinant peer norms to sexual risk behavior (number of lifetime vaginal sex partners, frequency of vaginal sex partners in previous 30 days, consistent condom use) among African American adult women?

- **Hypothesis 5**: Individual-level determinants will contribute greater variance to sexual risk behavior than the environmental determinant, peer norms.

Chapter 2: Literature Review

This chapter will briefly review the public health significance of STI/HIV infection among adult African American women and describe previous empirical research on the individual- and environmental-level variables hypothesized to be correlates of sexual risk behavior among adult African American women in this study: self-efficacy for partner communication, self-efficacy for sex refusal, positive future orientation and peer norms.

STIs/HIV Among Adult African American Women

As described in Chapter 1, African American women in the U.S. are disproportionately affected by STIs including HIV. Low-income African American women living in the southern U.S.— a region where rates of chlamydia, gonorrhea, syphilis and HIV are above the national average— are at particularly high risk of infection (Adimora, Schoenbach, & Doherty, 2006; CDC, 2010b). In addition to individual-level factors, a myriad of socioeconomic and relational

factors place African American women at increased risk for STI/HIV infection. Studies suggest that power imbalance in relationships leads some African American women to perceive a lack control over condom use (Mindy Thompson, Fullilove, Haynes, & Gross, 1990; Weinstock, Lindan, Bolan, Kegeles, & Hearst, 1993; Gina M. Wingood, Hunter-Gamble, & DiClemente, 1993). Poverty may exacerbate these power imbalances by increasing a woman's financial reliance on a male partner (Adimora & Schoenbach, 2005). Furthermore, Kalichman et al. found that fear of retaliatory physical and emotional abuse was a perceived barrier to condom use negotiation and refusal of unprotected sex among low-income African American women residing in urban areas (1998).

For sexually active women, consistent and error-free condom use is a highly effective method of preventing HIV transmission (St. Lawrence, et al., 1998). However, there is evidence that age is inversely related to consistent condom use, such that African American women are less likely to use condoms as they get older (G M Wingood & Diclemente, 1998a). This is likely due, in part, to the development of steady sexual partnerships as women age. Women attending family planning clinics report lower rates of condom use with steady or main sexual partners compared to casual partners (Weinstock, et al., 1993) and previous research demonstrates a low prevalence of condom use with steady partners among African Americans (Catania et al., 1992; El-Bassel et al., 2010). Qualitative research conducted with women attending urban STD clinics suggests that condom use is commonly discontinued during a relationship with a main partner, even when a woman suspects that this partner is not monogamous (Senn, Scott-Sheldon, Seward, Wright, & Carey, 2011). Women also report that once condom use is discontinued with a main partner it is highly difficult to re-introduce condom use into the relationship (Senn, et al., 2011).

This lack of condom use among adult African American women is concerning because women in steady partnerships remain at risk for STI/HIV infection. In particular, recent research focuses on the contribution of partner concurrency, or having multiple sex partners at the same time, to racial disparities in STI and HIV rates (Adimora et al., 2002; Adimora, Schoenbach, Taylor, Khan, & Schwartz, 2011; Senn, et al., 2011). While having multiple sexual partners is understood as a factor that increases an individual's risk of STI/HIV infection (Andersen & May, 1988; Seidman, 1992), concurrent partnerships spread infection through a sexual network more rapidly than sequential monogamous partnerships (Adimora, et al., 2002). Therefore, having concurrent sexual partners (individual's concurrency) or a partner who is engaged in multiple sexual relationships (partner's concurrency) increases a woman's risk of STI or HIV infection (Koumans et al., 2001; Potterat et al., 1999; Rosenberg, Gurvey, Adler, Dunlop, & Ellen, 1999). Having a low income, identifying as African American and being unmarried are individual-level factors associated with having concurrent sexual partners (Adimora, et al., 2002; Adimora, et al., 2011). A recent study based on the 2002 National Survey of Family Growth, which was representative of women ages 15 to 44 living in U.S. households, estimated that the past-year prevalence of partner concurrency among African American women was 10.0% (Adimora, et al., 2011). African American women were nearly twice as likely as White women to report partner concurrency (Adimora, et al., 2011). A multitude of contextual factors, acting through a variety of pathways, are believed to be responsible for this higher prevalence of partner concurrency among African American men and women; these include: a low marriage rate, male-to-female gender ratio imbalances in the African American community, high rates of incarceration among African American males, and gender-related power disparities in relationships (Adimora, et al., 2011; Senn, et al., 2011).

In summary, African American women remain at risk for STI/HIV infection throughout adulthood due to multiple factors functioning at both the individual and environmental level. At the individual level, lack of condom use with steady and casual partners, having multiple sexual partners, greater number of lifetime sexual partners and partner concurrency are all factors which increase the risk of STI/HIV infection among low-SES, adult African American women. Identifying individual-level correlates of these sexual risk behaviors can inform and enhance the design of STI/HIV risk-reduction interventions.

Self-efficacy for Partner Communication

A large body of empirical literature focuses on communication between sexual partners about safer sex. This includes, for example, communication about condom use or a partner's sexual history. Most research focuses on communication about safer sex as a correlate or predictor of consistent condom use. Communication about safer sex can be operationalized in several different ways. For example, some studies measure the frequency of communication about safer sex during a previous time period, some measure intention to communicate about safer sex in the future, and others measure a participant's perceived confidence to communicate about safer sex with a partner. The latter operationalization is considered self-efficacy for partner communication and is the focus of the literature reviewed in this section.

Most of the research concerning self-efficacy for partner communication and its association with safer sex has been conducted with adolescent samples. In a cross-sectional study, DiIorio et al. investigated associations between social cognitive constructs and condom use among 405 adolescents ranging in age from 13 to 15 years (DiIorio, et al., 2001). These adolescents, the majority of whom were African American (82.0%) and male (56.0%), were

recruited from community centers serving youth (DiIorio, et al., 2001). In bivariate analysis, a significant difference in means was found, indicating that adolescents who were consistent condom users had higher self-reported levels of self-efficacy to discuss sex history with a partner. Self-efficacy to discuss partner's sex history did not, however, significantly predict condom use in a logistic regression model investigating the influence of multiple social cognitive variables.

In an early study of factors predicting condom use and sex with multiple partners among a convenience sample of sexually active adolescent females attending a family planning clinic in California, participants completed a self-administered questionnaire which included one question measuring self-efficacy for partner communication; more specifically the item is described as measuring, "the ability to discuss sexual histories and condom use with prospective sexual partners" (Catania, et al., 1989, p. 517). The majority of the 114 participants were of white race (92.0%) and had a primary sexual partner (86.0%) (Catania, et al., 1989). Participants had a mean age of 17.9 years (Catania, et al., 1989). In hierarchical logistic regression analysis, self-efficacy for partner communication was significantly related to consistent condom use. In contrast, self-efficacy for partner communication was not a significant correlate of self-reported total number of sexual partners in the past year.

In a study which similarly recruited a convenience sample of 452 adolescents from a reproductive health clinic, Carol F. Roye investigated correlates of condom use among Hispanic and African American females who used hormonal contraception (1998). Self-efficacy for partner communication was measured using a 4-item scale created by the author and described as measuring adolescent women's, "ability to discuss with their partners topics related to sex" (Roye, 1998, p. 206). The majority of participants who completed the self-administered

questionnaire for this study were Hispanic, with African American women making up only 15.0% of the total sample. Condom use was measured by asking participants if they had used a condom “at least once” in the past four weeks (Roye, 1998, p. 207). In a multivariate logistic regression model, self-efficacy for partner communication did not significantly predict condom use in the past four months and did not vary significantly by race. The author suggests that this may be due to a lack of variance in the self-efficacy variable because almost all participants reported a high level of self-efficacy for partner communication. Additionally, the author discusses the possibility that perceived ability to communicate with partners about sex may not result in increased condom use, especially if this communication does not include discussion about condoms.

Rather than condom use, Sinonean et al. focused on another behavior—consistent refusal of unwanted sex— that can prevent the acquisition of STDs and HIV among adolescent women (2002). In a cross-sectional analysis of data collected as part of a larger HIV prevention trial, the authors analyzed data from 366 African American adolescent women who reported previously being pressured to have unwanted sex by a male partner. The adolescent women in this study ranged in age from 14 to 18 years and were recruited from community health clinics where they responded to a self-administered questionnaire. Self-efficacy for partner communication was measured using a 7-item scale that included items such as, “How hard is it for you to ask how many partners (your partner) has had?” (Sionéan, et al., 2002, p. 57). The scale also included items related to STD history and condom use. There was a significant bivariate relationship between consistent refusal of unwanted sex in the past six months and self-efficacy for partner communication. However, self-efficacy for communication was not significantly correlated with consistent refusal of unwanted sex in a multivariate logistic regression model.

Finally, DiClemente and Lodico investigated the influence of several SCT constructs, including self-efficacy for partner communication, on consistent condom use among a convenience sample of African American adolescents living in two public housing developments in San Francisco (1996). Self-efficacy for partner communication was investigated as part of a cross-sectional analysis of 116 adolescents who reported being sexually active in the past six months at baseline. Participants included the cross-sectional study ranged in age from 12 to 21 years and the majority were female (59.5%). These adolescents participated in a face-to-face interview which included one item measuring "Assertive self-efficacy" which the authors defined as, "a measure of adolescents' confidence to demand that sex partners use condoms during sexual intercourse" (Ralph J. DiClemente & Lodico, 1996, p. 271) Although the authors labeled this a measure of assertiveness, it was classified as a measure of communication self-efficacy in a recent meta-analysis of safer-sex communication. It also aligns with the measure of communication self-efficacy used in the present study which included an item stating, "How hard is it for you to demand that he use a condom?" In bivariate analysis, this measure of self-efficacy for partner communication was significantly associated with consistent condom use. Specifically, the risk of inconsistent condom use among participants with low reported self-efficacy for partner communication was 2.4 times the risk among participants with high reported levels of self-efficacy for partner communication. In a multivariate logistic regression model, participants with high self-efficacy for partner communication were almost 11 times as likely to be consistent condom compared to participants with low self-efficacy for partner communication. Furthermore, there was a significant interaction between self-efficacy for partner communication and both age and gender. Specifically, older adolescents (ages of 17 to 21years) with high self-efficacy for partner communication were significantly less likely to be

consistent condom users compared to younger adolescents (ages 12 to 16 years) with high self-efficacy. Females with high self-efficacy for partner communication were significantly less likely to be consistent condom users compared to males with high self-efficacy. These results suggest that the protective effect of self-efficacy for partner communication may diminish with age among both genders. The authors suggest that females reporting both high and low levels of self-efficacy for partner communication were less likely to report consistent condom use than their male counterparts due to a lack of personal control over the use of condoms.

In summary, several of these adolescent studies include males (Ralph J. DiClemente & Lodico, 1996; DiIorio, et al., 2001) or other racial groups (Catania, et al., 1989; DiIorio, et al., 2001; Roye, 1998) in their analysis, making it difficult to generalize the findings to African American female adolescents or adult women. While some studies focus on high-risk samples of African American adolescents, only two provide insight into the relationship between self-efficacy for partner communication and protective sexual behavior among African American female adolescents specifically (Ralph J. DiClemente & Lodico, 1996; Sionéan, et al., 2002). Despite this limitation, these studies suggest that self-efficacy for partner communication may be an important predictor of sexual behavior—especially consistent condom use—among adolescents.

Three studies investigated self-efficacy for partner communication as a correlate of sexual risk behavior among adult women (Raiford, et al., 2007; St. Lawrence, et al., 1998; Weinstock, et al., 1993). In an early cross-sectional study of factors associated with condom use, St. Lawrence et al. investigated “comfort with [partner] communication” as part of a broader measure of partner communication among a sample of 423 African American women (mean age = 31.3 years) recruited from community agencies who reported having vaginal intercourse in the

past two months (1998, p. 15). The self-report measure, administered via paper questionnaire, included three items assessing frequency of partner communication and three items assessing "comfort with communication" (St. Lawrence, et al., 1998). The Cronbach's alpha for this measure was 0.66 which is below the standard acceptable level of reliability. Despite these limitations, the study results suggest that partner communication may be an important factor in African American women's condom use. Specifically, women who were consistent condom users reported higher levels of comfort with partner communication compared to inconsistent users and women who never used condoms (St. Lawrence, et al., 1998).

Weinstock et al. investigated factors associated with condom use among a high-risk convenience sample of adult women recruited from a public STD clinic in San Francisco (1993). A total of 164 adult women ranging in age from 18 to 64 years (mean = 27.0 years) participated in the study by responding to a self-administered questionnaire. Among this low-income sample, slightly less than half of participants were African American (45.0%). To be included in the study participants had to report being sexually active in the past two months. The authors defined self-efficacy for partner communication as women's, "perceived abilities to get partners to use condoms," and measured this construct using three items including, "It is difficult for me to tell a partner that I won't have sex unless we use a rubber" (Weinstock, et al., 1993, p. 16). The outcome variable of interest in the study was condom use at last sex which was significantly associated with self-efficacy for partner communication (Weinstock, et al., 1993, p. 15). Specifically, the risk of condom non-use at last sex was 20.0% higher among women who reported low self-efficacy for partner communication compared to women who reported high self-efficacy.

Using SCT to guide their research, Raiford, Wingood and Diclemente investigated factors associated with condom use among HIV-positive African American adult women (2007). The 234 participants in this cross-sectional study were recruited from clinics and health departments in two southern states. In this adult convenience sample, approximately half of the women were age 18 to 35 and half were age 36 to 51. This was also a low-income sample, with the majority of women reporting a household income of less than $5,000 per year. The authors measured self-efficacy for partner communication, which they operationalized as, "women's confidence in ensuring safer sex practices with their partner," using a 4-item scale which demonstrated good internal consistency ($\alpha = .83$) (Raiford, et al., 2007, p. 46). Consistent condom use was defined as using a condom for every episode of vaginal sex during the past 30 days. In bivariate and multivariate analysis self-efficacy for partner communication emerged as the strongest correlate of consistent condom use among this subpopulation of adult African American women. Specifically, HIV-positive women with high self-efficacy for partner communication were almost 8 times as likely as women with low self-efficacy for partner communication to be consistent condom users (Raiford, et al., 2007).

In an attempt to synthesize the expanding body of literature on the topic of safer sex communication— including self-efficacy for partner communication— and its association with condom use , Noar, Carlyle and Cole undertook a systematic meta-analysis of 55 research studies on this topic. They were particularly interested in determining whether methodological (e.g. cross-sectional vs. longitudinal) or conceptual (e.g. operationalization of safer sex communication) study design factors moderated the relationship between safer sex communication and condom use (2006). Considering studies published through 2003, the overall effect size for safer sex communication was $r = .22$ and the effect size for self-efficacy

for partner communication was r = .13 (Noar, et al., 2006). The effect size for self-efficacy was smaller than other measurement operationalizations of safer sex communication, such as intention. The relatively low effect size for self-efficacy may be due to differences in self-reported confidence and actual communication behavior. In other words, an individual who is confident in their ability to communicate with their partner may nevertheless fail to engage in this behavior if they do not think it is necessary. The authors conclude that interventions should seek to increase participants' self-efficacy for communication while also building the skills necessary to translate confidence into safer sex behaviors.

In sum, these findings across samples suggest that self-efficacy for partner communication may have an important influence on condom use among adult African American women but further research, including studies that consider the relationship between self-efficacy and other sexual risk behaviors or outcomes, is necessary. There is a dearth of empirical research focusing on self-efficacy for partner communication among high-risk samples of adult African American women, such as those seeking sexual or reproductive health services in urban clinical settings. Given evidence that this form of self-efficacy is associated with consistent condom use among younger populations and that the protective effect of self-efficacy for partner communication may diminish with age, this represents an important knowledge gap.

Self-efficacy for Sex Refusal

Although refusal skills training is a component of efficacious STI/HIV prevention interventions (Crepaz, et al., 2009; Ralph J. DiClemente & Wingood, 1995; Kalichman, Rompa, & Coley, 1996), there is limited empirical evidence informing our knowledge of the relationship between self-efficacy for sex refusal and sexual risk behavior among low-income, high-risk

African American adult women. Similar to the body of research concerning self-efficacy for partner communication, most studies investigating self-efficacy for sex refusal have been conducted with adolescent or college-age samples and focus on consistent condom use as the sexual risk-taking outcome variable of interest. In the U.S. specifically, women commonly report high levels of self-efficacy for sex refusal of sexual intercourse. This likely arises from cultural sexual scripts which place limits on women's sexual behavior and portray women as the "gatekeepers" of sexual activity (Zimmerman, Sprecher, Langer, & Holloway, 1995, p. 385).

In an early cross-sectional study intended to inform AIDS education programming for adolescents, Kassen, Vaughan and Walter investigated self-efficacy for protective sexual behaviors, including refusal of sexual intercourse, among 181 tenth grade students (1992) . Utilizing a 9-item scale to measure self-efficacy for refusal of sex in a variety of situations, the authors found that students between the ages of 14 to 18 years with lower self-efficacy for refusal were 2.44 times as likely as students with higher self-efficacy for refusal to report having sexual intercourse within the past year (Kasen, et al., 1992). Examining the distribution of the individual scale items, the authors concluded that participants reported a greater perceived difficulty to refuse sex when the possible partner was "very desirable" or "familiar" (Kasen, et al., 1992, p. 196) . For example, a larger proportion of participants reported that they were "not at all sure" that they could refuse to have sexual intercourse with someone they had been dating for a long period of time compared to other items on the scale which did not indicate such partner familiarity (Kasen, et al., 1992).

Cecil and Pinkerton conducted a cross-sectional survey with 221 undergraduate students as part of a study investigating the reliability and validity of a 9-item measure of self-efficacy for refusal of sexual intercourse (1998). Consistent with the authors' hypotheses, greater self-

efficacy for refusal was negatively correlated with number of lifetime vaginal sex partners and number of vaginal sex partners in the past three months (Cecil & Pinkerton, 1998). Additionally, greater self-efficacy for refusal was positively correlated with condom use at last sexual intercourse (Cecil & Pinkerton, 1998). The authors limited their analysis to the bivariate level. Although findings from this mixed-gender, majority Caucasian sample are likely not generalizable to African American women, they provide support for the use of partner-quantity outcome variables when investigating self-efficacy for sex refusal.

As part of a cross-sectional study investigating social cognitive correlates of condom use, DiIorio et al. examined self-efficacy for sex refusal among a sub-sample of 119 sexually active male and female adolescents between the ages of 13 and 15 (DiIorio, et al., 2001). Although demographic data is not provided for sexually-active participants exclusively, the majority of participants in the overall sample were African American (82%) and slightly less than half were female (44%) (DiIorio, et al., 2001). Self-efficacy to refuse sex was measured using three items and emerged as significant in a multivariate logistic regression model for consistent condom use, which also included an item indicating perceived peer norms regarding condom use and other social cognitive variables. Sexually active participants who reported higher levels of self-efficacy for refusal were 2.27 times as likely as sexually active participants who reported low levels of self-efficacy for refusal to be consistent condom users (DiIorio, et al., 2001). Peer norms were not significant in the multivariate model.

Two prospective studies offer insight into self-efficacy for sex refusal as a predictor of consistent condom use among African American adolescent and young adult women. Wingood and DiClemente included an item indicating self-efficacy for refusal ("Have you ever refused to engage in sex practices you didn't like?") as part of a 7-item scale measuring sexual

assertiveness (1998b, p. 141). The authors analyzed data from baseline and 3-month follow-up interviews conducted with 128 low-SES African American women ages 18 to 29 to determine correlates and predictors of consistent condom use (G M Wingood & Diclemente, 1998a). The majority of participants were single (90.6%) and the prevalence of consistent condom use was low (28%) (G M Wingood & Diclemente, 1998a). At baseline, women with high assertive communication skills were 13 times as likely as women with low assertive communication skills to be consistent condom users (G M Wingood & Diclemente, 1998a). However, assertive communication was not predictive of consistent condom use at 3-month follow-up. Since the item measuring self-efficacy for sex refusal was not analyzed separately, it is not possible to fully elucidate the implications of these results for studies focusing more specifically on self-efficacy for sex refusal.

Finally, Crosby et al. investigated predictors of condom use among a clinic-based sample consisting of 242 sexually-active African American women (2011a). Self-efficacy for sex refusal was operationalized as a woman's perceived confidence in her ability to refuse sex without a condom. One item on an ACASI interview, "How sure are you that you would be able to say NO to having sex with someone who refuses to wear a condom?" was used to assess this construct (R. A. Crosby, et al., 2011b). The prevalence of consistent condom use among this sample was low (31.8%) and the majority of participants reported high self-efficacy for refusal (74%) (R. A. Crosby, et al., 2011b). In bivariate analysis, women who reported higher levels of self-efficacy for refusal at baseline assessment were almost twice as likely to consistently use condoms at 6-month follow-up as women who reported lower levels of self-efficacy for refusal at baseline (R. A. Crosby, et al., 2011b). Self-efficacy for refusal was not, however, a significant predictor of consistent condom use in multivariate analysis. Nevertheless, the authors suggest

that further research regarding factors related to women's self-efficacy for refusal of unprotected sex is warranted.

In summary, findings across samples suggest a possible association between African American women's self-efficacy for refusal of sexual intercourse in a variety of situations (e.g with a relatively unknown partner, a dating partner, a partner who refuses to wear a condom, etc.) and sexual risk behavior. While a limited number of prospective studies suggest that lower self-efficacy for sex refusal may be associated with inconsistent condom use, earlier cross-sectional investigations also suggest an association with a greater number of lifetime vaginal sex partners. Furthermore, in a previous study guided by SCT, self-efficacy for sex refusal contributed significant variance to consistent condom use above and beyond other social cognitive variables including peer norms. Few studies have investigated the direct effect of self-efficacy for sex refusal on other sexual risk-taking outcomes, such as number of lifetime partners, or considered the importance of this social cognitive variable among low-SES, high-risk African American adult women.

Positive Future Orientation

Several studies have demonstrated that individuals who maintain a positive future orientation are less likely to engage in risky behaviors including risky driving (Zimbardo, Keough, & Boyd, 1997), physical inactivity and poor diet (Luszczynskaa, Gibbons, Piko, & Tekozel, 2004), and substance use (Keough, Zimbardo, & Boyd, 1999; Robbins & Bryan, 2004). There is, however, limited empirical research examining the association between future orientation and sexual behavior. This is surprising given an obvious connection— in order to enact safer sex behaviors such as condom use in the present, individuals must focus on future

consequences. As Rothspan and Read explain, “the advanced goal setting, preparation, and forethought necessary for safer sex make it an inherently future-oriented task” (1996, p. 131). Present research is mostly limited to adolescent or college-aged samples and reveals a lack of understanding regarding the relationship between future orientation and sexual behavior in high-risk adult populations.

Early evidence of the influence of future orientation on sexual behavior comes from a longitudinal study which found that women who had a more positive future orientation were more likely to be successful users of various contraceptive methods (Oskamp, Mindick, Berger, & Motta, 1978). Additionally, a study conducted with sexually active adjudicated adolescents found that those reporting a more positive future orientation were significantly less likely to report using alcohol during sexual intercourse (Robbins & Bryan, 2004).

Additional studies have investigated the association between future orientation and sexual behavior among low-risk samples of undergraduate students (Agnew & Loving, 1998; Burns & Dillon, 2005; Rothspan & Read, 1996). While all three of these studies found that the association between positive future orientation and sexual behavior differed significantly by gender, they present conflicting results regarding whether associations are significant for males or females.

Specifically, Rothspan and Read cross-sectionally investigated the association of future orientation on condom use and other HIV-protective behaviors among a sample of 188 heterosexual undergraduate students who completed a self-administered survey (Rothspan & Read, 1996). This survey included a 38-item scale measuring past, present, and future time orientation. Overall, they found that participants who reported a higher level of future orientation were more likely to ask about a partner’s sexual history, abstain from or delay sexual intercourse,

and have a low number of sexual partners during the past 6 months and throughout life. The results for condom use were less clear, with only one association, between participants who reported an ability to delay gratification and higher frequency of past condom use, reaching significance. Gender (male or female) significantly moderated the association between future orientation and HIV protective behaviors. For males, as future orientation increased there was a significant decrease in the number of reported lifetime and past 6-month sexual partners. However, for females, the number of lifetime and past 6-month sexual partners did not change significantly as future orientation increased. Nevertheless, the authors suggest that HIV intervention programs should consider the inclusion of exercises that help participants to focus on their future goals and understand the consequences of current actions for those goals. The authors also recommend replicating this research in higher risk populations.

In a similar study guided by the Theory of Reasoned Action, Agnew and Loving investigated the association of future orientation with condom use attitudes, intentions and behaviors among a sample of 235 sexually active undergraduate students (1998). About one-quarter of the sample was female and over 90% were of white race. They found no significant association between future orientation and attitudes toward condoms, intentions to use condoms, or previous condom use behavior among female participants. However, all of these associations were significant for males. In accordance with the previous work of Rothspan and Read, this indicated that gender was a significant moderator of the effect of future orientation on several measures of condom use. The authors note that this is surprising because, in addition to the negative future consequence of STI/HIV infection, adolescent women also face the potentially negative consequence of unintended pregnancy when condoms aren’t used during intercourse. The authors speculate that women may be more concerned with the effectiveness of hormonal

contraception and thus positive future orientation among women may be associated with this form of contraception as opposed to condom use. While also calling for research examining future orientation and sexual behavior in other populations, Agnew and Loving conclude that HIV prevention efforts targeting college students should emphasize the negative consequences of short-term thinking as well as the inconsistency of working towards a long-term career or educational goal while taking significant sexual risks.

Finally, in the only study of future orientation and sexual risk focusing exclusively on African Americans, Burns and Dillon sampled 108 undergraduate students at a southeastern university (2005). Participants had a mean age of 21.1 years and the majority were female (67.9%). Future orientation was measured using a 9-item scale that included questions assessing planning for future events and delay of gratification. There was a significant positive association between future orientation and frequency of lifetime condom use ($r = .33$) as well as condom use in the past 6 months ($r = .25$). The authors measured condom use as a continuous percentage by asking participants to estimate frequency of condom use by "self or partner" (Burns & Dillon, 2005, p. 179) Additionally, future orientation was a significant positive predictor of both measures of condom use frequency in a multiple regression analysis. Consistent with previous literature (Agnew & Loving, 1998; Rothspan & Read, 1996), Burns and Dillon found that gender moderated the association between future orientation and condom use. Inconsistent with previous literature, they found no significant association between future orientation and condom use for males. However, female African American college students who reported higher levels of future orientation reported higher frequency of condom use. The authors suggest that future orientation may be a stronger predictor of condom use among adolescent women because women are more likely to consider the future consequences of pregnancy as well as STD/HIV infection.

They also conclude that HIV prevention interventions might be improved by differentiating participants based on individual levels of future orientation.

Thus, the limited evidence exploring the association between positive future orientation and sexual behavior is inconsistent, particularly in regards to the role that gender may play in moderating this association. Since previous results demonstrate a significant association between positive future orientation and increased condom use, as well as an increase of other safer sex behaviors, future orientation should be investigated in other populations at a higher risk for STI/HIV infection, such as non-college educated, lower income African American adult women.

Peer Norms Supportive of High-risk Sexual Behavior

Evidence suggests that peer norms supportive of high-risk sexual behavior significantly influence sexual behavior, particularly condom use, among African American women. While research suggestive of this association has been conducted with adolescent populations, research with adult women suggests that peer norms continue to effect sexual behavior during adulthood.

In a cross-sectional study of factors associated with condom use among African American adolescents, DiClemente and Lodico found that adolescents who perceived peer norms as supportive of condom use more than 4 times as likely as adolescents who perceived peer norms as unsupportive of condom use to be consistent condom users (1996). The findings from this study are difficult to generalize to adult African American women because the sample fell between the ages of 12 and 21 years and males were included in the analysis. Nevertheless, it provides evidence of the influence of peer norms on condom use among a high-risk sample of African Americans.

Recently, two studies of condom use among African American adolescent females supported Diclemente and Lodico's earlier findings. In a cross-sectional study investigating factors associated with the frequency of unprotected vaginal sex, Crosby et al. found that the perception that other African American adolescent women were using condoms was significantly negatively correlated with frequency of unprotected vaginal intercourse (Richard A. Crosby, et al., 2000). However, this association was only significant for adolescents who reported having a steady partner (i.e. boyfriend) and not for adolescents with a casual partner or partners. Nevertheless, the authors suggest that HIV prevention programs should attempt to change peer norms regarding condom use such that adolescents perceived condom use as a frequent behavior among their peers. In a longitudinal study of condom use among high-risk African American adolescent females with main or steady partners, Crosby et al. found that adolescent females who perceived unfavorable peer norms towards condom use were more than twice as likely as adolescents reporting favorable peer norms to report not using a condom the last time they had sex (Richard A. Crosby, et al., 2003). Furthermore, those reporting unfavorable peer norms were also almost 4 times as likely to report inconsistent condom use over the past 6 months. Similar to the previous study, the authors suggest promoting peer norms supporting condom use in HIV interventions aimed at individual behavior change among adolescent African American females.

In a cross-sectional study of 671 low-income minority women living in public housing, the majority of whom were African American, Sikkema et al. found a significant bivariate association between perceptions of safer sex peer norms and lower risk of HIV infection (Sikkema, et al., 1996). The authors classified women who reported consistent condom use, or involvement in a mutually monogamous relationship with a partner known to be HIV negative and not using injection drugs, to be "low risk" for HIV infection. However, peer norms

supporting safer sex were not associated with being classified as low-risk in multivariate logistic regression analysis.

In the cross-section study of HIV-positive African American women ages 18 to 50 years discussed above, Raiford et al. found that participants who perceived that other HIV-positive African American were using condoms were more than twice as likely to be consistent condom users compared to women who did not perceive supportive peer norms (2007). Although the results from this study may have limited applicability for HIV-negative women, it provides further evidence that peer norms remain an important factor in individuals' decision making even in adulthood. Finally, in a study which employed a longitudinal cross-over design in order to elucidate the effects of an HIV prevention curriculum on condom use among adult African American women, Dancy and Berbaum found that social norms significantly mediated the relationship between the intervention and consistent condom use during a 9-month recall period (2005). Social norms also significantly predicted African American women's consistent condom use over time. The authors operationalized social norms as norms sanctioning certain sexual behaviors, for example an item included, "Women are not to talk about condoms or about sex unless the man introduces the topic" (Dancy & Berbaum, 2005, p. 36). They suggest that HIV interventions targeting adult African American women should promote "non-restrictive" social norms in order to increase condom use (Dancy & Berbaum, 2005, p. 41).

Thus, there is substantial evidence of an association between peer norms supportive of safer sex behavior and decreased sexual risk behavior among African American women. Most research to-date focuses on peer norms regarding condom use and considers consistent condom use as the outcome variable of interest. Less is known about the association between peer norms regarding other high-risk sexual behaviors, such as sex with a casual partner or sex while

intoxicated, and other measures of sexual risk behavior among African American women. Furthermore, there is a lack of understanding of the relative effect of peer norms supportive of high-risk sexual behavior and other psychosocial determinants of sexual risk behavior among low-SES, high-risk African American adult women.

Chapter 3: Methods

The present study consisted of a secondary quantitative analysis of data collected for the cross-sectional HIV Vaccine Attitudes and Risk Compensation (HVARC) study. The HVARC study investigated a theoretical model of HIV vaccine acceptance and vaccine-induced changes in sexual risk behavior. Data were collected using a 60-minute, self-administered Audio Computer-Assisted Self-Interview (ACASI) survey.

Participants

The 321 African American women seeking sexual and reproductive health services at the Grady Hospital Family Planning clinic in Atlanta, Georgia who agreed to participate in HVARC were the target population for the present study. To be eligible to participate in HVARC, participants were required to: be female; self-identify as African American; between the ages of 18 and 55; unsure of their HIV status or HIV-negative; report having vaginal, oral, or anal sex without a condom in the past 6 months; and provide verbal informed consent to participate.

Measures

Demographic Information

At the beginning of the questionnaire, participants reported their current age, education level attained (recoded as high school or less vs. some college or more), annual household

income (recoded as less than $15,000 per year vs. more than $15,000 per year), employment status (recoded as unemployed vs. employed), and receipt of government assistance such as Temporary Assistance for Needy Families (TANF). Participants who reported that they were a full time student, a homemaker, retired, or unable to work were considered unemployed. Participants also reported lifetime history of STD diagnosis by responding to the question, "Have you ever had a positive STD test result?"

Self-efficacy for Partner Communication

Self-efficacy for partner communication was operationalized as a woman's perceived confidence in her ability to communicate with a male partner about safer sex practices, sexual history, and sexual behavior. Self-efficacy for partner communication was assessed using a 6-item scale developed by Wingood and DiClemente (1998a). Sample items included, "How hard is it for you to ask if he would use a condom?" and "How hard is it for you to ask if he is having sex with you and other women?" Participants indicated how difficult each item was for them on a 4-point Likert scale ranging from *very hard* (1) to *very easy* (4). Possible scores ranged from 6 to 24, with higher scores indicating greater self-efficacy for partner communication. The reliability and validity of this scale has been established in previous studies conducted with African American adolescent women (G M Wingood & Diclemente, 1998a). Internal consistency reliability was 0.893 in the present study.

Self-Efficacy for Sex Refusal

Self-efficacy for sex refusal was operationalized as a woman's perceived confidence in her ability to say "no" to sex with a male partner and was assessed using a 7-item scale (Cecil & Pinkerton, 1998; Gina M. Wingood & DiClemente, 1998b). Participants indicated confidence in

their ability to say "no" to sex in a variety of situations on a 4-point Likert scale ranging from *very hard to say no* (1) to *very easy to say no* (4). Each question began with the stem, "How sure are you that you would be able to say NO to having sex with someone…"; sample items included, "who is pressuring you to have sex?", "who refuses to wear a condom?" and "who you have known for a few days or less?" Possible score ranged from 7 to 28, with higher scores indicating greater self-efficacy to refuse sex with a male partner. The Cronbach's alpha for this scale was 0.885.

Positive Future Orientation

Positive future orientation was operationalized as maintaining a perception of personal control over future outcomes and the possibility of achieving desirable future outcomes. Positive future orientation was assessed using the 4-item Positive Future Outlook scale developed by Whitaker, Miller and Clark (2000). Participants indicated on a 5-point Likert scale ranging from *strongly disagree* (1) to *strongly agree* (5) how much they agreed with statements describing the perception of personal control over future outcomes ("What happens to me in the future mostly depends on me") and the possibility of achieving desirable future outcomes ("I can do just about anything I really set my mind to do"). Possible scores ranged from 4 to 20, with higher scores indicating a more positive future orientation. In the present study the Cronbach's alpha for this scale was 0.904.

Peer Norms Supportive of High-risk Sexual Behavior

Peer norms, or the salient beliefs of important people in an individual's environment supportive of risky sexual behavior, were assessed using a subset of 5 items from the Peer Norms Scale developed by Stanton et al. (1995). Sample items included, "How many of your friends

think that: it's ok to have sex without a condom?" and "How many of your friends think that: It's ok to have sex with someone you just met?" Participants indicated on a 5-point scale ranging from *none* (1) to *all* (5) how many of their peers endorsed each belief about sexual behavior. Possible scores ranged from 5 to 25, with higher scores indicating greater peer norms supportive of risky sexual behavior. In the present study the Cronbach's alpha for this scale was 0.854.

The appendix lists the full scales used to assess SCT predictor variables investigated in this study.

Sexual Risk-taking Outcomes

Number of Lifetime Vaginal Sex Partners

Number of lifetime vaginal sex partners was measured as a continuous variable with participants responding to the item, "In your entire life, how many men have you had vaginal sex with?"

Frequency of Vaginal Sex

Frequency of vaginal sex was measured as a continuous variable with participants responding to the item, "In the past 30 days, how many times did you have vaginal sex?"

Consistent Condom Use

Consistency of condom use was assessed by first calculating the proportion of condom-protected vaginal sex episodes in the past 30 days. Participants responded to two continuous items: (1) "In the past 30 days, how many times did you use a condom during vaginal sex?" and (2) "In the past 30 days how many times did you have vaginal sex?" Frequency of condom use was calculated as a percent by dividing the number of times a condom was used during vaginal

sex in the past 30 days by the number of vaginal sex episodes in the past 30 days. Second, frequency of condom use was dichotomized, with those reporting that they used a condom during every vaginal sex episode (frequency of condom use = 1.0 or 100%) classified as consistent condom users. All others were considered inconsistent condom users.

Procedure

Study protocol and procedures were approved by the Institutional Review Board at Emory University prior to implementation. From May 2011 through July 2011, project research assistants recruited self-identified African American women seeking sexual and reproductive health services at a family planning clinic in Atlanta, Georgia. Participants were approached in the waiting area of the clinic and asked if they would be interested in taking a survey for a research study about women's attitudes towards an HIV vaccine. If participants were interested, they were screened for eligibility in a private room at the clinic. Verbal informed consent was obtained from all participants prior to survey administration. Of the 623 women approached to participate in the study 81.5% (n = 508) agreed to be screened for eligibility. Of the 508 women screened, 69.5% (n = 353) were eligible to participate and 99.4% (n = 351) completed the survey. Of the 155 women not eligible to participate, the majority (74.8%, n = 116) reported that they had not had any form of sex without a condom in the past six months. Valid data were available from 321 of the 351 participants who completed the ACASI survey[1].

To ensure confidentiality, participants were assigned identification numbers based on the date of recruitment and recruiter initials; no identifying information was collected. The 60-

[1] We identified 29 participants who completed the survey and were staff at Grady Hospital or the Grady Hospital Family Planning Clinic. Since we were seeking a convenience sample of patients for this study, staff was excluded from the analysis. Data from one completed survey was lost due to an error in the saving procedure.

minute ACASI survey was completed in a group-setting in a private room at the clinic. Each participant completed the survey individually on a laptop computer equipped with headphones which allowed participants with limited literacy to hear questions read as they appeared on the screen. The survey included questions pertaining to demographic information, health status, sexual behavior, HIV/STI worry, HIV vaccine attitudes, psychosocial variables and pregnancy coercion. Participants could choose to take the survey while they waited for their clinic appointment or after their appointment was finished. If a participant was called for her appointment while the survey was in progress, the laptop she was using was reserved with the ACASI program running. This allowed the survey to be resumed in the same place when she returned from her appointment. Research assistants monitored survey administration and answered questions as needed. Participants received $25.00 in cash upon completion of the survey. All study materials, including laptops and survey data, were stored in a locked office at Emory University.

Data Analysis Plan

Data were analyzed using SPSS, version 19.0, statistical software package. Descriptive statistics were calculated for demographic variables (age, education level, annual household income, relationship status) and each independent variable of interest. Means were calculated for continuous data and frequencies were calculated for categorical data. The normality of all independent variables was assessed by calculating the degree of skewness and kurtosis. Variables were considered normally distributed if skewness and kurtosis ratios did not exceed an absolute value of 2.0.

To determine whether each hypothesized individual-level predictor variable (self-efficacy for partner communication, self-efficacy for sex refusal and positive future orientation) was significantly correlated with each sexual risk-taking outcome variable, bivariate correlations were calculated between each individual-level predictor variable and each outcome variable. Variables reaching a significance of $p < .20$ were included in regression models. A separate hierarchical linear regression model was constructed for each continuous outcome variable: number of lifetime vaginal sexual partners and frequency of vaginal sex in the past 30 days. A logistic regression model was constructed for the dichotomous outcome variable, consistent condom use. For each sexual risk-taking outcome of interest, identified covariates were entered into the model first, followed by the individual-level predictor variable. For all multivariate models, variables were considered significant predictors of sexual risk-taking outcomes at $p < .05$.

To determine the relative contributions of individual-level predictor variables (self-efficacy for partner communication, self-efficacy for sex refusal and positive future orientation) and the environmental-level determinant (peer norms supportive of high-risk sexual behavior) to sexual risk-taking outcomes a hierarchical multivariate regression was performed. Hierarchical linear regression was used for the continuous outcome variables, number of lifetime vaginal sex partners and frequency of vaginal sex, and hierarchical logistic regression was used for the dichotomous outcome variable, consistent condom use. For each sexual risk-taking outcome of interest, identified covariates were entered into the model first, followed by peer norms in the second step and the individual-level predictor variable in the final step.

Ch.4: Results

Demographic Characteristics

The sample consisted of 321 African American women ranging in age from 18 to 54 years. On average, participants were 27.4 years of age (sd = 7.74). The majority of participants had a high school education or less (n = 207, 64.5%), were unemployed (n = 180, 56.1%), and had an annual household income of less than $15,000 (n = 245, 76.6%).

The majority of participants reported that they had a main partner (n = 297, 92.5%). Of participants who had a main partner, approximately 20% reported that they had been in a relationship with this partner for less than one year (n = 58, 19.5%). Approximately 30.0% of participants reported having at least one casual sex partner in the past 3 months (n = 95, 29.6%) (Table 1). Additionally, 21.1% of participants reported having multiple (more than one) vaginal sex partner in the past 3 months (n = 67). Finally, the majority of participants reported testing positive for an STD in their lifetime (n = 210, 65.4%).

Distribution of SCT Variables

The mean self-efficacy for communication score was 19.5 (sd = 4.19), with scores ranging from 6.0 to 24.0. Participants reported a mean self-efficacy for sex refusal score of 23.6 (sd = 4.16), with scores ranging from 7.0 to 28.0. The mean future orientation score was 17.3 (sd = 3.16), with scores ranging from 4.0 to 20.0. Finally, participants reported a mean peer norms score of 10.2 (sd = 4.41), with scores ranging from 5.0 to 25.0 (Table 2). All predictor variables satisfied the criteria for normality described above, except for future orientation (skewness = -2.06, kurtosis = 6.06). In accordance with sound statistical practice, future orientation was dichotomized based on a median split (MacCallum, Zhang, Preacher, & Rucker,

2002). As a result, 46.1% of participants (n = 148) were classified as having "high" future orientation.

Distribution of Sexual Risk-taking Outcome Variables

The mean number of lifetime sexual partners was 12.1 (sd = 31.1). On average, participants reported having vaginal sex 7.38 (sd = 11.3) times in the past 30 days. Finally, the majority of participants were inconsistent condom users (n = 239, 78.4%) (Table 3).

Covariates

Demographic variables (age, employment status, educational level) that were significantly associated with outcome variables (number of lifetime partners, frequency of sex in past 30 days, and consistency of condom use) at the $p \leq .20$ level were controlled for in multivariate analyses. Due to theoretical relevance, main partner status was also controlled for in multivariate analyses when significantly correlated with outcome variables at the $p \leq .20$ level.

A Pearson correlation was used to assess the relationship between women's age and number of lifetime sexual partners. A statistically significant positive relationship between age and number of lifetime sexual partners was observed ($r = .082$, $p = .145$). A Pearson correlation was used to assess the relationship between women's age and frequency of vaginal sex in the past 30 days. A statistically significant negative relationship between age and frequency of vaginal sex in the past 30 days was observed ($r = -.125$, $p = .029$). No significant difference in age between consistent and inconsistent condom users was observed ($t = -.363$, $df = 303$, $p = .717$).

An independent samples t-test was used to assess the relationship between employment status, number of lifetime vaginal sex partners, and frequency of vaginal sex. Women who were unemployed reported a significantly higher number of lifetime vaginal sex partners (mean = 15.9, sd = 40.8) compared to women who were employed (mean = 9.28, sd = 8.67) (t = 2.09, df = 194.5, p = .038). No significant difference in frequency of vaginal sex between employed and unemployed women was observed (t = .099, df = 304, p = .921). There was no statistically significant difference in employment status between consistent and inconsistent condom users (χ^2 = .091, df = 1, p = .763).

An independent samples t-test was used to assess the relationship between education level, number of lifetime vaginal sex partners, and frequency of vaginal sex. No significant difference in number of lifetime partners between those with a high school education or less and those with more than a high school education was observed (t = -.851, df = 315, p = .396). Education level was associated with frequency of vaginal sex such that women with a more than a high school education were more likely to report a higher frequency of vaginal sex in the past 30 days (mean = 8.98, sd = 13.9) compared to women with a high school education or less (mean = 6.49, sd = 9.44) (t = -1.67, df = 164.6, p = .096). There was no statistically significant difference in education level between consistent and inconsistent condom users (χ^2 = .159, df = 1, p = .690).

Main partner status was not significantly associated with number of lifetime partners (t = -2.58, df = 315, p = .796). Whether or not a woman had a main partner was significantly associated with frequency of vaginal sex in the past 30 days such that women with a main partner reported a higher frequency of sex (mean = 7.65, sd = 11.5) compared to women who did not have a main partner (mean = 3.06, sd = 3.01) (t = 1.68, df = 304, p = .093). Women who

had a main partner were significantly more likely to be inconsistent condom users (n = 230, 79.9%) than women who did not have a main partner (n = 9, 52.9%) (χ^2 = 6.86, df = 1, p = .009)[2].

Hypothesis 1

In bivariate analysis, self-efficacy for partner communication was not significantly related to number of lifetime partners (r = -.055, p = .332) or frequency of vaginal sex in the past 30 days (r = .043, p = .453). Additionally, no significant difference in self-efficacy for communication scores between consistent and inconsistent condom users was observed (t = -.471, df = 303, p = .638).

Hypothesis 2

In bivariate analysis, a statistically significant negative relationship between self-efficacy for sex refusal and number of lifetime partners was observed (r = -.199, p < .0001). However, self-efficacy for sex refusal was not significantly related to frequency of vaginal sex in the past 30 days (r = -.035, p = .539). Additionally, no significant difference in self-efficacy for sex refusal scores between consistent and inconsistent condom users was observed (t = -.001, df = 303, p = .999).

A hierarchical linear regression was performed using age, employment status and self-efficacy for sex refusal to predict lifetime number of vaginal sexual partners. Age and employment status were entered into the model first, followed by self-efficacy for sex refusal. The overall model was significant (F(3,313) = 6.112), p <.0001). Table 6 displays the results of this model. Both employment status and self-efficacy for sex refusal were significant in

[2] For this chi-square test, one cell had an expected cell count of less than 5

predicting number of lifetime sexual partners. Self-efficacy for sex refusal significantly predicted number of lifetime sexual partners ($p = .001$) and accounted for 3.5% of the variance in number of lifetime partners above and beyond age and employment status. Specifically, for every one unit increase in self-efficacy for sex refusal, number of lifetime sexual partners decreased by .19 units (holding all other predictors constant). The entire regression model including age, employment status and self-efficacy for sex refusal accounted for 5.5% of the variance in number of lifetime partners.

Hypothesis 3

In bivariate analysis, no significant difference in number of lifetime partners between participants with high positive future orientation and low positive future orientation was observed ($t = -.660$, $df = 315$, $p = .510$). Similarly, no significant difference in frequency of vaginal sex in the past 30 days between participants with high positive future orientation and low positive future orientation was observed ($t = -.506$, $df = 304$, $p = .613$). No significant difference in positive future orientation between consistent and inconsistent condom users was observed ($\chi^2 = .058$, $p = .810$).

Hypothesis 4

In bivariate analysis, there was a statistically significant positive relationship between peer norms supportive of high-risk sexual behavior and number of lifetime sexual partners ($r = .142$, $p = .011$). Additionally, there was a statistically significant positive relationship between peer norms supportive of high-risk sexual behavior and frequency of vaginal sex in the past 30 days ($r = .12$, $p = .036$).

A hierarchical linear regression was performed using age, employment status and peer norms supportive of high-risk sexual behavior to predict lifetime number of vaginal sex partners. Age and employment status were entered into the model first, followed by peer norms. The overall model was significant ($F(3,313) = 4.222$), $p = .006$). Table 7 displays the results of this model. Peer norms supportive of high-risk sexual behavior was the only variable that retained significance in the model. Peer norms significantly predicted number of lifetime sexual partners ($p = .014$) and accounted for 1.9% of the variance in number of lifetime sexual partners above and beyond age and employment status. Specifically, for every one unit increase in peer norms supportive of high-risk sexual behavior, number of lifetime sexual partners increased by .14 units (holding all other predictors constant). The entire regression model including age, employment status and peer norms supportive of high-risk sexual behavior accounted for 3.9% of the variance in number of lifetime sexual partners.

A hierarchical linear regression model was performed using age, education level, main partner status and peer norms supportive of high-risk sexual behavior to predict frequency of vaginal sex in the previous 30 days. Age, education level and main partner status were entered into the model first, followed by peer norms. The overall model was significant ($F(4, 301) = 3.976$, $p = .004$). Table 8 displays the results of this model. Age was the only variable that retained significance in the model ($p = .020$). Specifically, for every one unit increase in age, frequency of vaginal sex in the previous 30 days decreased by .132 units. Peer norms supportive of high-risk sexual behavior approached significance in the model ($p = .056$). The entire regression model including age, education level, main partner status and peer norms accounted for 5.0% of the variance in frequency of vaginal sex in the previous 30 days.

Hypothesis 5

To determine the relative contribution of self-efficacy for sex refusal, an individual-level determinant, and peer norms, an environmental determinant, to number of lifetime sexual partners, a hierarchical linear regression was performed. Age and employment status were included as covariates in the model. The overall model was significant ($F(4, 312) = 5.549$, $p < .0001$). Table 9 displays the results of this model. Employment status and self-efficacy for sex refusal were significant in predicting number of lifetime sexual partners. Peer norms approached significance ($p = 0.054$) in predicting number of lifetime sexual partners. Self-efficacy for sex refusal significantly predicted number of lifetime sexual partners and accounted for 2.8% of the variance in number of lifetime partners above and beyond age, employment status and peer norms. Specifically, for every one unit increase in self-efficacy for sex refusal score, number of lifetime sexual partners decreased by .170 units. The entire regression model including age, employment status, self-efficacy for sex refusal and peer norms accounted for 6.6% of the variance in number of lifetime sexual partners.

Ch. 5: Discussion

Discussion of Findings

This convenience sample of adult African American women seeking services at a family planning clinic in Atlanta, Georgia reported high levels of inconsistent condom use and previous STD diagnosis, indicating that this sample is particularly vulnerable to STI/HIV infection. The high prevalence of inconsistent condom use observed in the current study is not surprising given the inclusion criteria for the parent study, which required that women report at least one incidence of unprotected sexual intercourse in the previous six months. Additionally, the vast

majority of women reported that they had a main partner, which has been previously associated with lack of condom use among women, including African American women (Catania, et al., 1989; El-Bassel, et al., 2010).

This cross-sectional study was designed to evaluate the association of self-efficacy for partner communication, self-efficacy for sex refusal and positive future orientation with sexual risk behaviors among low-SES adult African American women. Consistent with previous research, participants in the current study reported high levels of refusal self-efficacy (R. A. Crosby, et al., 2011b; Zimmerman, et al., 1995). As hypothesized, greater self-efficacy for sex refusal was negatively associated with number of lifetime vaginal sex partners while controlling for the identified covariates, age and employment status. According to SCT, self-efficacy for a given behavior is associated with a greater likelihood of engaging in that behavior. The findings of this study, which suggest that adult African American women with greater confidence in their ability to refuse sex in a variety of situations are likely to have fewer lifetime vaginal sex partners, align with the relationship between individual-level factors and behavior posited by SCT. Results from this study are in accordance with previous research indicating that self-efficacy for sex refusal is associated with a lower number of lifetime vaginal sex partners among college-age samples (Cecil & Pinkerton, 1998), and with studies which have identified associations between self-efficacy for sex refusal and sexual risk or protective behaviors among sexually active African American women specifically (R. A. Crosby, et al., 2011b; G M Wingood & Diclemente, 1998a). In contrast to previous research demonstrating an association between self-efficacy for sex refusal and consistent condom use among adolescent (Cecil & Pinkerton, 1998; DiIorio, et al., 2001; G M Wingood & Diclemente, 1998a) and adult women (R. A. Crosby, et al., 2011b), self-efficacy for sex refusal was not associated with consistent condom

use in this study. This discrepancy in findings may be partially explained by the fact that these previous studies measured self-efficacy for sex refusal in specific relation to condom use (e.g. "How sure are you that you would be able to say NO to having sex with someone who refuses to wear a condom?"), while the current study employed a broader measure of self-efficacy for sex refusal. Additionally, the importance of refusal self-efficacy as a correlate of current sexual risk behavior among adult women remains somewhat unclear because the present study did not measure the timing of lifetime sexual partnerships. For example, a woman with high refusal self-efficacy may have rejected more sexual partners as an adolescent and therefore report fewer lifetime partners as an adult. Future studies should investigate the association between self-efficacy for sex refusal and number of partners in a more recent time period, such as previous six months.

As expected, results of bivariate and multivariate hierarchical linear regression analyses indicated that peer norms supportive of high-risk sexual behavior were associated with number of lifetime vaginal sex partners. While peer norms supportive of high-risk sexual behavior were associated with greater frequency of vaginal sex in the previous 30 days in bivariate analysis, peer norms only approached significance in multivariate hierarchical regression analysis. These findings are consistent with SCT, which posits that peer norms are a key environmental determinant of behavior. Most previous research investigating peer norms and sexual risk behavior among African American women has focused on consistent condom use as the outcome variable of interest. In a prospective study, for example, Crosby et al. found that high-risk African American adolescent females with steady male partners who reported unfavorable peer norms towards condom use were almost 4 times as likely to report inconsistent condom use during the previous 6 months (Richard A. Crosby, et al., 2003). Furthermore, peer norms have

been identified as a significant mediator of the effects of an HIV prevention curriculum and subsequent condom use among adult African American women (Dancy & Berbaum, 2005). Although peer norms were not significantly associated with consistent condom use in the present study, results suggest that peer norms supportive of high-risk sexual behavior are related to other STI/HIV-associated sexual risk behaviors of interest and likely continue to be associated with African American women's sexual behavior during adulthood. Further research is needed to investigate the role of peer norms supportive of high-risk sexual behavior on current sexual risk behavior among adult African American women. These findings add to the evidence-base underlying STI/HIV prevention programs for high-risk African American women which include components intended to change perceptions of peer norms in order to decrease a variety of sexual risk behaviors.

The present study also sought to evaluate the relative contribution of individual- and environmental-level determinants to sexual risk behaviors. A key finding, in alignment with a-priori hypotheses, is that self-efficacy for sex refusal contributes greater variance to number of lifetime vaginal sex partners than peer norms. One prior study investigated the relative contributions of these two social cognitive determinants of behavior among sexually-active male and female adolescents and found that only refusal self-efficacy was significant in a multivariate logistic regression model for consistent condom use (DiIorio, et al., 2001). The current study provides preliminary evidence that refusal self-efficacy, an individual-level determinant of behavior, is a correlate of number of lifetime partners and may be more strongly associated with this sexual risk behavior than peer norms, an environmental-level determinant.

Taken together, key findings from the current study support the continued inclusion of both refusal skills training and modules addressing perceptions of peer norms in STI/HIV

behavioral interventions designed for African American adult women. A recent meta-analysis of STI/HIV intervention for African American females, found that efficacious interventions, which successfully reduce sexual risk behaviors and theory-based determinants of these sexual risk behaviors, focus on increasing various forms of self-efficacy (Crepaz, et al., 2009). Culturally-tailored, gender-specific programs should seek to increase women's confidence in their ability to refuse sex in a variety of social situations. Social Cognitive Theory suggests that this can be achieved through observational learning, which can take the form of media demonstrations, peer modeling or role-playing intended to provide African American women with an opportunity to practice and build their refusal skills (Glanz, et al., 2008). For example, the efficacious one-on-one intervention, "Sister to Sister—Respect Yourself! Protect Yourself! Because You Are Worth It!" designed specifically for intervening with high-risk African American adult women in primary care settings, includes a module intended to increase self-efficacy for condom negotiation through discussion and a short video clip (Jemmott, et al., 2008). This intervention, which has been shown to decrease sexual risk behavior and the incidence of STIs among African American adult women, may be enhanced via the integration of activities designed to increase refusal self-efficacy into the pre-existing modules. Furthermore, given evidence that peer norms may continue to influence sexual risk behavior among low-SES African American women, interventions tailored for this population should focus on increasing women's perceptions that their peers practice safer sex behaviors, as suggested by existing literature (Richard A. Crosby, et al., 2003; Richard A. Crosby, et al., 2000; Dancy & Berbaum, 2005). Efficacious STI/HIV prevention programs for African American adolescent women, such as HORIZONS, include components addressing peer norms and are led by African American female health educators who model norms supportive of safer-sex behavior (Ralph J. DiClemente et al., 2004). Programs

designed specifically for adult African American women, whether administered in a group or individual setting, may benefit by incorporating similar components.

In contrast to hypothesized relationships, the current study did not find a significant association between self-efficacy for partner communication and sexual risk behavior among African American adult women. In particular, findings from this study are inconsistent with research conducted with African American adolescents (Ralph J. DiClemente & Lodico, 1996) and HIV-positive adult African American women (Raiford, et al., 2007) suggesting a significant association between self-efficacy for partner communication and consistent condom use. However, these findings are consistent with the previous finding that the protective effect of high self-efficacy for partner communication among African American female adolescents may diminish with increasing age (Ralph J. DiClemente & Lodico, 1996). Additionally, these results align with a recent meta-analysis which found a relatively low effect size for partner communication self-efficacy compared to other measures of partner communication such as intention or frequency (Noar, et al., 2006).

Another possible explanation for the lack of association between partner communication self-efficacy and sexual risk behavior is that a disparity may exist between the high levels of self-efficacy for partner communication reported by women in the current study and actual communication behavior. According to SCT, outcome expectations, or beliefs about the likelihood and desirability of the consequences perceived to result from a given behavior, are an important determinant of behavior, in addition to self-efficacy. For example, an African American woman may express high self-efficacy to communicate with a sexual partner, but simultaneously believe that this communication will result in a negative outcome and, therefore, may not communicate with a partner despite having confidence in her ability to do so. Indeed,

previous research suggests that high-risk African American adult women fear retaliation in the form of physical or emotional abuse as a consequence of negotiating safer sex (Kalichman, et al., 1998). However, the current study did not control for these relational barriers to protective sexual behaviors. In order to more fully elucidate the relationship between partner communication and sexual risk behavior, future studies should evaluate both self-efficacy for partner communication and outcome expectations related to partner communication while controlling for relational barriers to protective sexual behaviors. Furthermore, in order to assess possible disparities between self-efficacy and behavior, future studies might also measure frequency of partner communication.

Given the lack of previous research concerning the relationship between future orientation and sexual behavior among African American adult women, this study's investigation of future orientation as an individual-level determinant of sexual risk behavior was largely exploratory. The majority of participants (n = 185, 57.6%) reported future orientation scores in the upper quartile for this scale, possibly indicating a ceiling effect for this variable. Thus, the measure of future orientation used in this study may not be sensitive enough to capture the nuances of this construct among adult African American women. The null result in the current study is concurrent with previous research conducted by Agnew and Loving among sexually-active college students, which found that the association between future orientation and condom use behavior, attitudes and intentions was significant for males only (1998). On other hand, the current finding contrasts with a previous study which found that higher levels of future orientation were associated with more frequent condom use among African American female college students (Burns & Dillon, 2005). It is possible that some high-risk African American women do not explicitly connect current sexual risk behavior to future outcomes; in other words,

present risk behavior may not affect women's perceptions of the possibility of achieving desirable future outcomes. Aforementioned authors have also suggested that women who are future-oriented may be more concerned with preventing pregnancy than with acquiring an STI/HIV (Agnew & Loving, 1998; Burns & Dillon, 2005). Therefore, future orientation may be more strongly associated with hormonal contraception as opposed to condom use or other sexual risk behaviors such as having multiple partners. Further research is needed to understand how future orientation operates in the context of adult sexual behavior. Future research should seek to create scales that better capture this construct among African American adult women.

Limitations

The current study is not without limitations. This study utilized secondary data analysis in order to address research questions which were not considered in the design of the questionnaire for the parent study. Although a multitude of demographic and behavioral variables were assessed in the questionnaire, a limited number of scales and questions relevant to the current study were available for analysis. A major limitation of the present study is its cross-sectional design which prevented the investigation of causal relationships between individual and environmental factors and sexual risk behaviors. Additionally, the measures of sexual risk behavior used in this study were dependent upon self-reported data. Self-report of sensitive behaviors such as number of sexual partners is subject to social desirability bias. To minimize this reporting bias, the study questionnaire was administered via audio computer assisted interviewing (ACASI) which has been shown to reduce bias in the reporting of HIV-associated risky sexual behaviors among respondents recruited from STD/family planning clinics (Rogers et al., 2005). Self-report measures may also be limited by recall bias, especially for women with a large number of sexual partners. To minimize this, participants were asked to report the number

of male sexual partners they had had over a recent and discrete period of time. In the present study, outcome measures of sexual risk behavior were limited to penile-vaginal intercourse. Given that oral and anal sex can also result in STI/HIV infection, future studies should investigate social cognitive correlates of risk behaviors specific to these forms of sexual intercourse as well. Furthermore, the external validity of the findings is limited by the use of a convenience sample consisting of adult African American women recruited from a family planning clinic in Atlanta, Georgia. Results may not be generalizable to external populations including African American women not attending family planning clinics. Furthermore, almost all of the women in this sample reported having a main partner. Thus, results should be replicated in samples with a greater degree of heterogeneity in sexual relationships. Internal validity of findings, however, was partially supported by the high alpha values for measures of SCT-derived variables, all of which exceeded .70. Future research should include longitudinal studies conducted with probability samples of high-risk African American adult women to determine the individual and environmental predictors of risky sexual behavior among this population.

Implications

Previous research has identified many social cognitive factors that increase risk of STI/HIV infection among African American females; however, several of these factors have yet to be adequately explored among adult populations. This study sought to expand the current knowledge base for STI/HIV prevention among adult African American women by investigating the association of three individual-level variables, self-efficacy for partner communication, self-efficacy for sex refusal and positive future orientation with sexual risk behavior. In order to continue the refinement of efficacious interventions to prevent STI/HIV infection and

transmission among high-risk adult African American women, the developers of these programs require empirical evidence of social cognitive variables associated with sexual risk and protective behaviors. Results from the present study can inform the design and content of STI/HIV prevention interventions and guide future research pertaining to the individual and environmental factors driving the HIV epidemic among low-SES adult African American women.

Overall, results showed a high prevalence of inconsistent condom use, and previous STI diagnosis among a low-SES sample of African American adult women recruited from an urban family planning clinic. Although results should be interpreted in the context of this study's limitations, important SCT-derived constructs were found to be associated with number of lifetime partners and frequency of sex in the previous 30 days. This study supports the inclusion of modules focusing on self-efficacy for sex refusal and peer norms regarding sexual risk behavior in theory-driven STI/HIV prevention interventions and programs designed to increase individual-level protective factors among African American adult women.

Directions for Future Research

While it is important to identify individual risk factors for STI/HIV infection, recent research highlights the importance of relational variables and sexual networks in facilitating STI/HIV transmission. Thus, in addition to the aforementioned suggestions for future research, studies should explore social cognitive variables related to interpersonal risk and protective factors. Evidence from the current study supports the previous finding that high-risk African American adult women are unlikely to consistently use condoms with steady partners. Qualitative and quantitative research should evaluate self-efficacy to seek mutual STI testing

with a steady partner and to re-introduce condom use into a relationship with a steady partner. Such studies should also control for relational barriers to these protective forms of self-efficacy, including history or fear of abuse. Furthermore, partner concurrency is an important risk factor for STI/HIV infection among adult African American women and should be included as a measure of sexual risk in future studies. This study further supports the use of Social Cognitive Theory to investigate individual- and environmental-level factors associated with sexual risk behavior among populations especially vulnerable to STI/HIV infection. Future work should seek to integrate and operationalize other salient SCT constructs including outcome expectancies and motivation.

Appendix 1. Scale Information

Scale	Items	Response Options
Self-efficacy for partner communication	How hard is it for you to ask how many sex partners he has had?	(1) Very hard (2) Hard (3) Easy (4) Very easy
	How hard is it for you to ask if he is having sex with you and other women?	
	How hard is it for you to ask if he has an STD?	
	How hard is it for you to ask if he would use a condom?	
	How hard is it for you to demand that he use a condom?	
	How hard is it for you to refuse to have sex if he won't use a condom?	
Self-efficacy for sex refusal	How sure are you that you would be able to say NO to having sex with someone you have known for a few days or less?	(1) Very hard to say no (2) Hard to say no (3) Easy to say no (4) Very easy to say no
	How sure are you that you would be able to say NO to having sex with someone you want to date again?	
	How sure are you that you would be able to say NO to having sex with someone who you want to fall in love with you?	
	How sure are you that you would be able to say NO to having sex with someone who is pressuring you to have sex?	
	How sure are you that you would be able to say NO to having sex with someone after you have been drinking alcohol?	
	How sure are you that you would be able to say NO to having sex with someone who refuses to wear a condom?	
	How sure are you that you would be able to say NO to having sex with someone who you have had sex with before?	
Positive future orientation	What happens to me in the future mostly depends on me	(1) Strongly disagree (2) Disagree (3) Neither agree nor disagree (4) Agree (5) Strongly agree
	I can do just about anything I really set my mind to do	
	My future is what I make of it	
	I have great faith in the future	
Peer norms supportive of high-risk sexual behavior	How many of your friends think that: It's ok to have sex without a condom?	(1) None (2) Few (3) Some (4) Most (5) All
	How many of your friends think that: It's ok to have sex with someone you just met?	
	How many of your friends think that: Cheating on your partner is ok?	
	How many of your friends think that: It's safe to have sex when you are high on drugs or alcohol?	
	How many of your friends think that: You don't have to use a condom with someone you know well?	

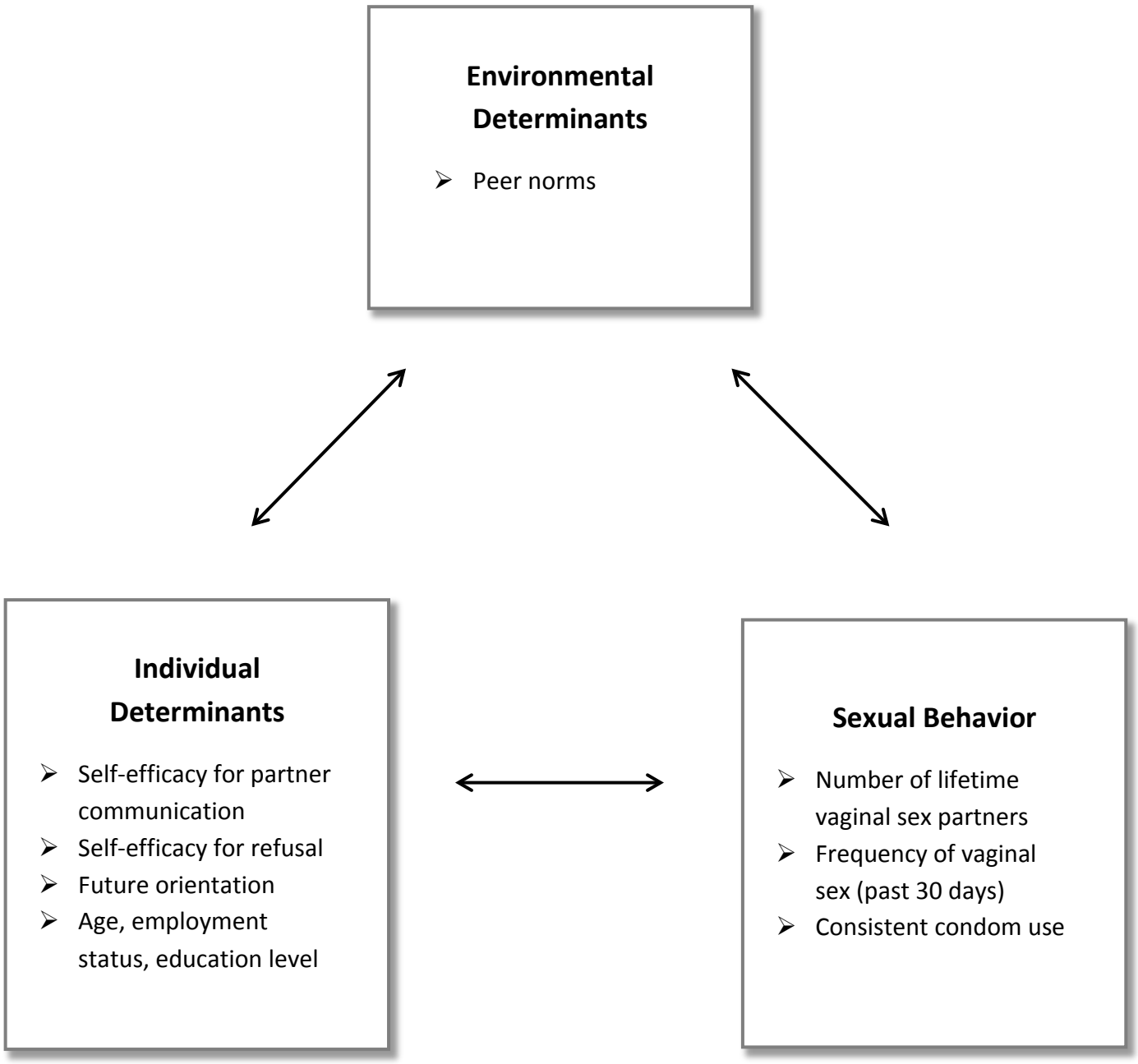

Figure 1. Social cognitive theoretical framework depicting the hypothesized relationship among individual- and environmental-level factors and sexual behavior

Table 1. Demographic information (N = 321)

Characteristic	**N**	**%**
Education level		
High school or less	207	64.5
Annual household income		
< $15,000 / year	245	76.6
Employment status		
Unemployed	180	56.1
Main partner		
Yes	297	92.5
Current relationship status (main partner)		
Casually dating	42	14.1
Exclusively dating, not living together	115	38.7
Exclusively dating, living together	93	31.3
Living together, not exclusively dating	8	2.7
Married, not living together	5	1.7
Married and living together	34	11.4
Length of current relationship (main partner)		
< 1 year	58	19.5
1 to 2 years	42	14.1
> 2 years	197	66.3
Casual partner (past 3 months)		
Yes	95	29.6
Number of casual partners (past 3 months)		
One	68	73.9
More than one	24	26.1
	Mean	**Standard Deviation**
Age (years)	27.4	7.74

Table 2. Distribution of SCT independent variables (N = 321)

Variable	Mean	Min, Max	Standard Deviation
Self-efficacy for partner communication	19.5	(6, 24)	4.19
Self-efficacy for sex refusal	23.6	(7, 28)	4.16
Positive future orientation	17.3	(4, 20)	3.16
Peer norms supportive of high-risk sexual behavior	10.2	(5, 25)	4.41

Table 3. Distribution of sexual risk-taking outcome variables (N = 321)

Variable[a]	Mean	Standard Deviation
Number of lifetime sexual partners	12.1	31.1
Frequency of sex (past 30 days)	7.38	11.3
	N	**%**
Frequency of Condom Use		
Inconsistent users	239	78.4
Consistent users	66	21.6

[a]All reported sexual risk-taking variables are exclusive to vaginal sex

Table 4. Bivariate associations between SCT variables and continuous-level sexual risk-taking outcome variables

	Number of lifetime sexual partners	**Frequency of sex (past 30 days)**
Independent variable	R[a]	R
Self-efficacy for partner communication	-.055	.43
Self-efficacy for sex refusal	-.199***	-.035
Peer norms supportive of high-risk sexual behavior	.142*	.12*
	t[b]	t
Positive future orientation	-.660	-.506

[a]Pearson correlation coefficients are presented for continuous variables
[b] Independent t-tests were conducted for dichotomous independent variables
*p < .05

**p < .01

***p < .001

Table 5. Bivariate associations between SCT variables and dichotomous-level sexual risk-taking outcome variables

	Consistent condom users[a]	**Inconsistent condom users**[b]	
Independent variable	Mean (SD)	Mean (SD)	p-value
Self-efficacy for communication	19.3 (3.97)	19.6 (4.19)	.638
Self-efficacy for refusal	23.6 (3.91)	23.6 (4.19)	.999
Peer norms	9.50 (4.43)	10.5 (4.42)	.116
	χ^2		
Positive future orientation	.058		.810

[a] n = 66; [b] n = 239

*p < .05

**p < .01

***p < .001

Table 6. Hierarchical regression of self-efficacy for sex refusal and control variables on number of lifetime vaginal sex partners

	ΔR^2	ΔF	df	t (final step)	β (final step)	B (final step)
Step 1:	.020	3.23	2, 314			
Age				1.233	.07	.28
Employment status				-2.056	-.11*	-7.10*
Step 2:	.035	11.66	1, 313			
Self-efficacy for sex refusal				-3.415	-.19***	-1.42***

*p<.05

**p<.01

***p<.001

Table 7. Hierarchical regression of peer norms supportive of high-risk sexual behavior and control variables on number of lifetime vaginal sex partners

	ΔR^2	ΔF	df	t (final step)	β (final step)	B (final step)
Step 1:	.020	3.23	2, 314			
Age				1.147	.01	.390
Employment status				-1.934	-.11	-6.75
Step 2:	.019	6.106	1, 313			
Peer norms				2.471	.137*	.966*

*p<.05

**p<.01

***p<.001

Table 8. Hierarchical regression of peer norms supportive of high-risk sexual behavior and control variables on frequency of vaginal sex in previous 30 days

	ΔR^2	ΔF	df	t (final step)	β (final step)	B (final step)
Step 1:	.039	4.04	3, 302			
Age				-2.333	-1.32*	-.190*
Education level				1.811	.103	2.42
Main partner status				-1.799	-.101	-4.84
Step 2:	.012	3.68	1, 301			
Peer norms				1.918	.109	.275

*p<.05

**p<.01

***p<.001

Table 9. Hierarchical regression of self-efficacy for sex refusal, peer norms and control variables on number of lifetime vaginal sex partners

	ΔR^2	ΔF	df	t (final step)	β (final step)	B (final step)
Step 1:	.020	3.23	2, 314			
Age				1.317	.07	.29
Employment status				-1.946	-.11*	-6.71*
Step 2:	.019	6.11	1, 313			
Peer Norms				1.924	.107	.754
Step 3:	.028	9.11	1, 312			
Self-efficacy for sex refusal				-3.033	-.170**	-1.28**

*p<.05

**p<.01

***p<.001

References

Adimora, A. A., & Schoenbach, V. J. (2005). Social context, sexual networks, and racial disparities in rates of sexually transmitted infections. *J Infect Dis, 191 Suppl 1*, S115-122. doi: 10.1086/425280

Adimora, A. A., Schoenbach, V. J., Bonas, D. M., Martinson, F. E. A., Donaldson, K. H., & Stancil, T. R. (2002). Concurrent Sexual Partnerships among Women in the United States. *Epidemiology, 13*(3), 320-327.

Adimora, A. A., Schoenbach, V. J., & Doherty, I. A. (2006). HIV and African Americans in the southern United States: sexual networks and social context. *Sex Transm Dis, 33*(7 Suppl), S39-45. doi: 10.1097/01.olq.0000228298.07826.68

Adimora, A. A., Schoenbach, V. J., Taylor, E. M., Khan, M. R., & Schwartz, R. J. (2011). Concurrent Partnerships, Nonmonogamous Partners, and Substance Use Among Women in the United States. [Article]. *American Journal of Public Health, 101*(1), 128-136. doi: 10.2105/ajph.2009.174292

Agnew, C. R., & Loving, T. J. (1998). Future time orientation and condom use attitudes, intentions, and behavior. *Journal of Social Behavior & Personality, 13*(4), 755-764.

Andersen, R. M., & May, R. M. (1988). Epidemiological parameters of HI V transmission. [10.1038/333514a0]. *Nature, 333*(6173), 514-519.

Bandura, A. (1982). Self-efficacy mechanism in human agency. *American Psychologist, 37*(2), 122-147. doi: 10.1037/0003-066x.37.2.122

Bandura, A. (1986). *Social Foundations of Thought and Action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice-Hall.

Bandura, A. (1994). Social Cognitive Theory and Exercise of Control Over HIV Infection. In R. J. Diclemente & J. L. Peterson (Eds.), *Preventing AIDS: Theories and methods of behavioral interventions* (pp. 25 - 59). New York: Plenum.

Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: W.H. Freeman and Company.

Bandura, A. (2004). Health promotion by social cognitive means. *Health Educ Behav, 31*(2), 143-164. doi: 10.1177/1090198104263660

Burns, M. J., & Dillon, F. R. (2005). AIDS Health Locus of Control, Self-Efficacy for Safer Sexual Practices, and Future Time Orientation as Predictors of Condom Use in African American College Students. *Journal of Black Psychology, 31*(2), 172-188.

Catania, J. A., Coates, T. J., Ron, S., Turner, H., Peterson, J., Hearst, N., . . . Groves, R. (1992). Prevalence of AIDS-Related Risk Factors and Condom Use in the United States. *Science, 258*(5085), 1101-1106.

Catania, J. A., Dolcini, M. M., Coates, T. J., Kegeles, S. M., Greenblatt, R. M., Puckett, S., . . . Miller, J. (1989). Predictors of Condom Use and Multiple Partnered Sex among Sexually-Active Adolescent Women: Implications for AIDS-Related Health Interventions. *The Journal of Sex Research, 26*(4), 514-524.

CDC. (2006). Cases of HIV Infection and AIDS in the United States and Dependent Areas, 2006. *HIV/AIDS Surveillance Report, 18*. Retrieved from http://www.cdc.gov/hiv/surveillance/resources/reports/2006report/

CDC. (2007). *A Heightened National Response to the HIV/AIDS Crisis Among African Americans*. Atlanta: Retrieved from http://www.cdc.gov/hiv/topics/aa/resources/reports/pdf/heightenedresponse.pdf.

CDC. (2010a). *CDC Fact Sheet: HIV in the United States*. Atlanta: Retrieved from http://www.cdc.gov/hiv/resources/factsheets/PDF/us.pdf.

CDC. (2010b). *Georgia - 2010 Profile*. Retrieved from http://www.cdc.gov/nchhstp/stateprofiles/pdf/georgia_profile.pdf.

CDC. (2011a). *CDC Fact Sheet: Chlamydia*. Retrieved from http://www.cdc.gov/std/chlamydia/chlamydia-fact-sheet-August-2011.pdf.

CDC. (2011b). *CDC Fact Sheet: HIV Among African Americans*. Atlanta: Retrieved from http://www.cdc.gov/hiv/topics/aa/PDF/aa.pdf.

CDC. (2011c). *CDC Fact Sheet: HIV among Women*. Atlanta: Retrieved from http://www.cdc.gov/hiv/topics/women/pdf/women.pdf.

Cecil, H., & Pinkerton, S. D. (1998). Reliability and Validity of a Self-Efficacy Instrument for Protective Sexual Behaviors. *Journal of American College Health, 47*(3), 113.

Crepaz, N., Marshall, K. J., Aupont, L. W., Jacobs, E. D., Mizuno, Y., Kay, L. S., . . . O'Leary, A. (2009). The Efficacy of HIV/STI Behavioral Interventions for African American Females in the United States: A Meta-Analysis. [Article]. *American Journal of Public Health, 99*(11), 2069-2078.

Crockett, R. A., Weinman, J., Hankins, M., & Marteau, T. (2009). Time orientation and health-related behaviour: measurement in general population samples. *Psychol Health, 24*(3), 333-350. doi: 10.1080/08870440701813030

Crosby, R., DiClemente, R., Salazar, L., Wingood, G., McDermott-Sales, J., Young, A., & Rose, E. (2011a). Predictors of Consistent Condom Use Among Young African American Women. *AIDS and Behavior*, 1-7. doi: 10.1007/s10461-011-9998-7

Crosby, R. A., Diclemente, R. J., Salazar, L. F., Wingood, G. M., McDermott-Sales, J., Young, A. M., & Rose, E. (2011b). Predictors of Consistent Condom Use Among Young African American Women. *AIDS and Behavior*.

Crosby, R. A., DiClemente, R. J., Wingood, G. M., Salazar, L. F., Harrington, K., Davies, S. L., & Oh, M. K. (2003). Identification of Strategies for Promoting Condom Use: A Prospective Analysis of High-Risk African American Female Teens. *Prevention Science, 4*(4), 263-270. doi: 10.1023/a:1026020332309

Crosby, R. A., DiClemente, R. J., Wingood, G. M., Sionean, C., Cobb, B. K., & Harrington, K. (2000). Correlates of Unprotected Vaginal Sex Among African American Female Adolescents: Importance of Relationship Dynamics. *Arch Pediatr Adolesc Med, 154*(9), 893-899. doi: 10.1001/archpedi.154.9.893

Dancy, B. L., & Berbaum, M. L. (2005). Condom Use Predictors for Low-Income African American Women. *Western Journal of Nursing Research, 27*(1), 28-44. doi: 10.1177/0193945904268342

DiClemente, R. J., & Lodico, M. (1996). African-American adolescents residing in high-risk urban environments do use condoms: Correlates. *Pediatrics, 98*(2), 269.

DiClemente, R. J., & Peterson, J. L. (1994). social cognivitve theory and exercise of control over HIV infectionPreventing AIDS: theories and methods of behavioral intervention (pp. 25 - 60). New York: Plenum Press.

DiClemente, R. J., & Wingood, G. M. (1995). A Randomized Controlled Trial of an HIV Sexual Risk—Reduction Intervention for Young African-American Women. *JAMA: The Journal of the American Medical Association, 274*(16), 1271-1276. doi: 10.1001/jama.1995.03530160023028

DiClemente, R. J., Wingood, G. M., Harrington, K. F., Lang, D. L., Davies, S. L., Hook, E. W., . . . Robillard, A. (2004). Efficacy of an HIV Prevention Intervention for African American Adolescent Girls. *JAMA: The Journal of the American Medical Association, 292*(2), 171-179. doi: 10.1001/jama.292.2.171

DiIorio, C., Dudley, W. N., Kelly, M., Soet, J. E., Mbwara, J., & Sharpe Potter, J. (2001). Social cognitive correlates of sexual experience and condom use among 13- through 15-year-old adolescents. *Journal of Adolescent Health, 29*(3), 208-216. doi: 10.1016/s1054-139x(00)00200-7

DiIorio, C., Dudley, W. N., Lehr, S., & Soet, J. E. (2000). Correlates of safer sex communication among college students. *Journal of Advanced Nursing, 32*(3), 658-665. doi: 10.1046/j.1365-2648.2000.01525.x

El-Bassel, N., Jemmott, J. B., Landis, J. R., Pequegnat, W., Wingood, G. M., Wyatt, G. E., . . . for the NIMH Multisite HIV/STD Prevention Trial for African American Couples Group. (2010). National Institute of Mental Health Multisite Eban HIV/STD Prevention Intervention for African American HIV Serodiscordant Couples: A Cluster Randomized Trial. *Arch Intern Med, 170*(17), 1594-1601. doi: 10.1001/archinternmed.2010.261

Glanz, K., Rimer, B. K., & Viswanath, K. (Eds.). (2008). *Health Behavior and Health Education: Theory, Research, and Practice* (4th ed.). San Francisco: Jossey-Bass.

Hall, H. I., An, Q., Hutchinson, A., & Sansom, S. (2008). Estimating the Lifetime Risk of a Diagnosis of the HIV Infection in 33 States, 2004-2005. *Journal of Aquired Immune Deficiency Syndromes, 49*(3), 294-297. doi: 10.1097/QAI.0b013e3181893f17

Hall, H. I., Song, R., Rhodes, P., Prejean, J., An, Q., Lee, L. M., . . . Janssen, R. S. (2008). Estimation of HIV Incidence in the United States. *JAMA: The Journal of the American Medical Association, 300*(5), 520-529. doi: 10.1001/jama.300.5.520

Heron, M., Hoyert, D. L., Murphy, S. L., Xu, J., Kochanek, K. D., & Tejada-Vera, B. (2009). Deaths: final data for 2006. *Natl Vital Stat Rep, 57*(14), 1-134.

Jemmott Iii, J. B., Jemmott, L. S., Spears, H., Hewitt, N., & Cruz-Collins, M. (1992). Self-efficacy, hedonistic expectancies, and condom-use intentions among inner-city black adolescent women: A social cognitive approach to AIDS risk behavior. *Journal of Adolescent Health, 13*(6), 512-519. doi: 10.1016/1054-139x(92)90016-5

Jemmott, L. S., Jemmott, J. B., Hutchinson, M. K., Cederbaum, J. A., & O'Leary, A. (2008). Sexually Transmitted Infection/HIV Risk Reduction Interventions in Clinical Practice Settings. *Journal of Obstetric, Gynecologic, & Neonatal Nursing, 37*(2), 137-145. doi: 10.1111/j.1552-6909.2008.00221.x

Kalichman, S. C., Rompa, D., & Coley, B. (1996). Experimental component analysis of a behavioral HIV–AIDS prevention intervention for inner-city women. *Journal of Consulting and Clinical Psychology, 64*(4), 687-693. doi: 10.1037/0022-006x.64.4.687

Kalichman, S. C., Williams, E. A., Cherry, C., Belcher, L., & Nachimson, D. (1998). Sexual Coercion, Domestic Violence,and Negotiating Condom Use Among Low-Income African American Women. [Article]. *Journal of Women's Health, 7*(3), 371.

Kasen, S., Vaughan, R. D., & Walter, H. J. (1992). Self-Efficacy for AIDS Preventive Behaviors among Tenth Grade Students. *Health Education & Behavior, 19*(2), 187-202. doi: 10.1177/109019819201900204

Keough, K. A., Zimbardo, P. G., & Boyd, J. N. (1999). Who's Smoking, Drinking, and Using Drugs? Time Perspective as a Predictor of Substance Use. [Article]. *Basic & Applied Social Psychology, 21*(2), 149-164.

Koumans, E. H., Farley, T. A., Gibson, J. J., Langley, C., Ross, M. W., McFarlane, M., . . . St Louis, M. E. (2001). Characteristics of persons with syphilis in areas of persisting syphilis in the United States: sustained transmission associated with concurrent partnerships. *Sex Transm Dis, 28*(9), 497-503.

Luszczynskaa, A., Gibbons, F. X., Piko, B. F., & Tekozel, M. (2004). Self-Regulatory Cognitions, Social Comparison, and Percieved Peers' Behaviors as Predictors of Nutrition and Physical Activity: A Comparison Among Adolescents in Hungary, Poland, Turkey, and USA. [Article]. *Psychology & Health, 19*(5), 577-593. doi: 10.1080/0887044042000205844

MacCallum, R. C., Zhang, S., Preacher, K. J., & Rucker, D. D. (2002). On the practice of dichotomization of quantitative variables. *Psychological Methods, 7*(1), 19-40. doi: 10.1037/1082-989x.7.1.19

McAlister, A. L., Perry, C. L., & Parcel, G. S. (2008). How Individuals, Environments, and Health Behaviors Interact: Social Cognitive Theory *Health Behavior and Health Education: Theory, Research and Practice* (4th ed., pp. 170-188). San Francisco: Jossey-Bass.

Mindy Thompson, F., Fullilove, R. E., III, Haynes, K., & Gross, S. (1990). Black Women and AIDS Prevention: A View Towards Understanding the Gender Rules. *The Journal of Sex Research, 27*(1), 47-64.

Mize, S. J. S., Robinson, B. E., Bockting, W. O., & Scheltema, K. E. (2002). Meta-analysis of the effectiveness of HIV prevention interventions for women. [Article]. *AIDS Care, 14*(2), 163-180. doi: 10.1080/09540120220104686

Noar, S., Carlyle, K., & Cole, C. (2006). Why Communication Is Crucial: Meta-Analysis of the Relationship Between Safer Sexual Communication and Condom Use. [Case Study]. *11*, 365-390. doi: 10.1080/10810730600671862

O'Leary, A., Jemmott, L. S., & Jemmott, J. B. (2008). Mediation analysis of an effective sexual risk-reduction intervention for women: the importance of self-efficacy. *Health Psychol, 27*(2 Suppl), S180-184. doi: 10.1037/0278-6133.27.2(Suppl.).S180

Oskamp, S., Mindick, B., Berger, D., & Motta, E. (1978). A longitudinal study of success versus failure in contraceptive planning. *Population & Environment, 1*(1), 69-83. doi: 10.1007/bf00972725

Potterat, J. J., Zimmerman-Rogers, H., Muth, S. Q., Rothenberg, R. B., Green, D. L., Taylor, J. E., . . . White, H. A. (1999). Chlamydia Transmission: Concurrency, Reproduction Number, and the Epidemic Trajectory. *American Journal of Epidemiology, 150*(12), 1331-1339.

Raiford, J. L., Wingood, G. M., & DiClemente, R. J. (2007). Correlates of Consistent Condom Use Among HIV-Positive African American Women. *Women & Health, 46*(2-3), 41-58. doi: 10.1300/J013v46n02_04

Risser, W. L., Bortot, A. T., Benjamins, L. J., Feldmann, J. M., Barratt, M. S., Eissa, M. A., & Risser, J. M. H. (2005). The Epidemiology of Sexually Transmitted Infections in Adolescents. *Seminars in Pediatric Infectious Diseases, 16*(3), 160-167. doi: 10.1053/j.spid.2005.04.004

Robbins, R. N., & Bryan, A. (2004). Relationships Between Future Orientation, Impulsive Sensation Seeking, and Risk Behavior Among Adjudicated Adolescents. *Journal of Adolescent Research, 19*(4), 428-445. doi: 10.1177/0743558403258860

Rogers, S. M., Willis, G., Al-Tayyib, A., Villarroel, M. A., Turner, C. F., Ganapathi, L., . . . Jadack, R. (2005). Audio computer assisted interviewing to measure HIV risk behaviours in a clinic population. *Sexually Transmitted Infections, 81*(6), 501-507. doi: 10.1136/sti.2004.014266

Romero, L., Galbraith, J., Wilson-Williams, L., & Gloppen, K. (2011). HIV Prevention Among African American Youth: How Well Have Evidence-Based Interventions Addressed Key Theoretical Constructs? *AIDS and Behavior, 15*(5), 976-991. doi: 10.1007/s10461-010-9745-5

Rosenberg, M. D., Gurvey, J. E., Adler, N., Dunlop, M. B., & Ellen, J. M. (1999). Concurrent sex partners and risk for sexually transmitted diseases among adolescents. *Sex Transm Dis, 26*(4), 208-212.

Rothspan, S., & Read, S. J. (1996). Present versus future time perspective and HIV risk among heterosexual college students. *Health Psychology, 15*(2), 131-134. doi: 10.1037/0278-6133.15.2.131

Roye, C. F. (1998). Condom use by hispanic and african-american adolescent girls who use hormonal contraception. *Journal of Adolescent Health, 23*(4), 205-211. doi: 10.1016/s1054-139x(97)00264-4

Seidman, S. N. M. W. D. A. S. O. (1992). Women with Multiple Sexual Partners: United States, 1988. [Article]. *American Journal of Public Health, 82*(10), 1388-1394.

Senn, T., Scott-Sheldon, L., Seward, D., Wright, E., & Carey, M. (2011). Sexual Partner Concurrency of Urban Male and Female STD Clinic Patients: A Qualitative Study. *Archives of Sexual Behavior, 40*(4), 775-784. doi: 10.1007/s10508-010-9688-y

Sikkema, K. J., Heckman, T. G., Kelly, J. A., Anderson, E. S., Winett, R. A., Solomon, L. J., . . . Mercer, M. B. (1996). HIV risk behaviors among women living in low-income, inner-city housing developments. *Am J Public Health, 86*(8), 1123-1128.

Sionéan, C., DiClemente, R. J., Wingood, G. M., Crosby, R., Cobb, B. K., Harrington, K., . . . Oh, M. K. (2002). Psychosocial and behavioral correlates of refusing unwanted sex among African-American adolescent females. *Journal of Adolescent Health, 30*(1), 55-63. doi: 10.1016/s1054-139x(01)00318-4

St. Lawrence, J. S., Eldridge, G. D., Reitman, D., Little, C. E., Shelby, M. C., & Brasfield, T. L. (1998). Factors Influencing Condom Use Among African American Women: Implications for Risk Reduction Interventions. *American Journal of Community Psychology, 26*(1), 7-28. doi: 10.1023/a:1021877906707

Stanton, B., Black, M., Feigelman, S., Ricardo, I., Galbraith, J., Li, X., . . . Nesbitt, R. (1995). Development of a culturally, theoretically and developmentally based survey instrument for assessing risk behaviors among African-American early adolescents living in urban low-income neighborhoods. *AIDS Educ Prev, 7*(2), 160-177.

Weinstock, H. S., Lindan, C., Bolan, G., Kegeles, S. M., & Hearst, N. (1993). Factors associated with condom use in a high-risk heterosexual population. *Sex Transm Dis, 20*(1), 14-20.

Whitaker, D. J., Miller, K. S., & Clark, L. F. (2000). Reconceptualizing Adolescent Sexual Behavior: Beyond Did They or Didn't They? *Family Planning Perspectives, 32*(3), 111-117.

Wingood, G. M., & Diclemente, R. J. (1998a). Gender-related correlates and predictors of consistent condom use among young adult African-American women: a prospective analysis. *International Journal of STD & AIDS, 9*(3), 139-145. doi: 10.1258/0956462981921891

Wingood, G. M., & DiClemente, R. J. (1998b). Partner Influences and Gender-Related Factors Associated with Noncondom Use Among Young Adult African American Women. *American Journal of Community Psychology, 26*(1), 29-51. doi: 10.1023/a:1021830023545

Wingood, G. M., Hunter-Gamble, D., & DiClemente, R. J. (1993). A Pilot Study of Sexual Communication and Negotiation among Young African American Women: Implications for HIV Prevention. *Journal of Black Psychology, 19*(2), 190-203. doi: 10.1177/00957984930192008

Wulfert, E., & Wan, C. K. (1993). Condom use: A self-efficacy model. *Health Psychology, 12*(5), 346-353. doi: 10.1037/0278-6133.12.5.346

Zamboni, B. D., Crawford, I., & Williams, P. G. (2000). Examining communication and assertiveness as predictors of condom use: Implications for HIV prevention. *AIDS Education and Prevention, 12*(6), 492-504.

Zimbardo, P. G., Keough, K. A., & Boyd, J. N. (1997). Present time perspective as a predictor of risky driving. *Personality and Individual Differences, 23*(6), 1007-1023. doi: 10.1016/s0191-8869(97)00113-x

Zimmerman, R. S., Sprecher, S., Langer, L. M., & Holloway, C. D. (1995). Adolescents' Perceived Ability to Say "No" to Unwanted Sex. *Journal of Adolescent Research, 10*(3), 383-399. doi: 10.1177/0743554895103005