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TO USE OR NOT TO USE: THE ROLE OF AFFECT AND COGNITION IN CHANGING
ATTITUDES TOWARD USING CONDOMS AMONG AFRICAN AMERICAN WOMEN

A dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of
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Abstract

TO USE OR NOT TO USE: THE ROLE OF AFFECT AND COGNITION IN CHANGING ATTITUDES TOWARD USING CONDOMS AMONG AFRICAN AMERICAN WOMEN

By Kristina B. Hood, Ph.D.

A dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy at Virginia Commonwealth University.

Virginia Commonwealth University, 2012.

Major Directors: Drs. Faye Z. Belgrave & Natalie J. Shook,
Professor, Department of Psychology
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The current project involved three studies designed to examine which characteristics of persuasive communications change condom use attitudes. Study 1 investigated the effect of message type (affective versus cognitive) and source (male versus female) on attitude change among a sample of African American women attending college. In Study 1 ($N = 146$), the affective message and female source produced the most positive change in condom use attitudes. Study 2 examined whether message type and source were associated with favorable condom attitudes in a community sample and whether these findings differed from a college sample. Twenty-seven women participated in group discussions and completed measures of attitudes and intentions. Similar to Study 1, the pattern of means in Study 2 showed the affective message delivered by the female source resulted in the most positive condom use attitude change. These results were not significant likely due to the small sample. Focus groups were also conducted to better understand the types of condom use messages African American women find effective. Several themes

emerged: condom used primarily for pregnancy prevention; negative condom use attitudes; communicating messages through internet, TV, and radio; creating fun, catchy, and informative messages; using celebrities and peers to deliver messages; and increasing the frequency of messages to equal importance of topic.

The third study assessed the effectiveness of an attitude change pilot intervention that was based on the results of Studies 1 and 2. The study used a 2 (intervention vs. control) X 3 (pretest, posttest, follow-up) mixed factorial design to examine whether women's attitudes changed after a pilot session and whether the change persisted over time. African American women ($N = 115$) were recruited through Craigslist and community agencies. There were no significant differences across time for the intervention and the control group. Reasons for the lack of an effect in Study 3 are discussed. Taken together, these studies provide evidence that, under certain conditions an affective message delivered by a female source can change attitudes toward using condoms. The results of these studies could potentially enhance existing interventions by renewing a focus on changing attitudes as well as behavior.

To Use or Not to Use: The Role of Affect and Cognition in Changing Attitudes toward Using Condoms among African American Women

At some point in their life, 1 in 32 African American women will be diagnosed with Human Immunodeficiency Virus (HIV) (Center for Disease Control and Prevention, CDC, 2010). African Americans make up approximately 14% of the U.S. population and comprised 44% of new HIV/AIDS diagnoses in 2009 (CDC, 2011a). Among women, African Americans comprise 64% of women living with the disease and account for 57% of new transmissions among females (CDC, 2008 & 2011a). Heterosexual contact is the primary mode of HIV transmission for African American women and accounts for 85% of HIV/AIDS diagnoses (CDC, 2011b). Thus, African American women continue to be a population at increased risk for HIV/AIDS. There are various biological, social, cultural, and psychological factors that put women at risk for the acquisition and transmission of HIV and other sexually transmitted infections (STIs) (CDC, 2007b). Consistent condom use is crucial to prevent HIV. The overall goal of this dissertation was to develop and pilot an intervention to change African American women's attitudes about condom use through the use of persuasive messages. The addition of an attitude change component to existing interventions could yield changes in African American women's attitudes toward condom use, as well as promote lasting change in their attitudes, intentions, and behaviors toward using condoms.

Incidence of HIV and Other STIs among African American Women

Women's increased risk for HIV is attributable to biological vulnerability coupled with a multitude of complex socioeconomic and cultural factors, including having unprotected sex (CDC, 2011a). African American men represent about 44% of HIV/AIDS cases among adolescent and adult men, whereas African American women account for 68% of the cumulative HIV/AIDS cases reported among females (CDC, 2011a). Cumulative incidence rates for AIDS are more than 23

times higher among African American women than White women (CDC, 2007b). Young women and African American women residing in urban areas also have disproportionately higher rates of STIs including chlamydia, syphilis, gonorrhea, and pelvic inflammatory disease (CDC, 2010). Indeed, African American women have higher rates of STIs than women from any other ethnic or racial groups.

The three most common STIs among women are trichomoniasis, chlamydia, and gonorrhea (CDC, 2007a). The most common curable STI affecting young sexually active women is trichomoniasis (CDC, 2007b). It is estimated that 7.4 million men and women are infected with this disease each year and many of these infections go undiagnosed. Caused by a parasite, this STI, if gone undetected, has been linked to infertility in women (CDC, 2007a). The primary mode of prevention of trichomoniasis in sexually active adults is the use of latex male condoms. When used consistently and correctly, male condoms can reduce the risk of transmission of trichomoniasis (CDC, 2007a).

Chlamydia is the most commonly reported STI in the U.S. It disproportionately affects women with a rate of infection three times higher in women than men (CDC, 2008a). Rates for infection in African American females in the U.S. are 1446 per 100,000 as compared to Latina (658 per 100,000) and Caucasian females (173 per 100,000) (CDC, 2008a). Gonorrhea also disproportionately affects African American and young women between the ages of 15-24. Although the rates of gonorrhea have declined in recent years, in 2008, there were 336,742 reported cases in the U.S. making it the second most commonly reported STI (CDC, 2008b). The rate of infection for African American women in 2009 was 621 per 100,000 which is significantly higher than for Latina (75 per 100,000) and Caucasian women (33 per 100,000) (CDC, 2011a). Gonorrhea and chlamydia are caused by genital secretions and can be prevented through consistent condom use

(CDC, 2007b). Both of these infections, if gone undiagnosed can cause pelvic inflammatory disease and infertility in women (CDC, 2007a). Women with higher rates of STIs are, in turn, at increased risk for HIV infection (Aral, Hawkes, Biddlecom, & Padian et al., 2004).

Sexually transmitted diseases heighten women's risk for HIV in two ways: increased susceptibility and increased infectiousness. People who are infected with a STI are two to five times more likely to acquire HIV from an unprotected sexual encounter than an uninfected person (CDC, 2010). In STIs that result in genital ulcers (e.g., syphilis and herpes), the sores create breaks in the lining of the skin that produce points of entry for HIV pathogens. However, in non-ulcerated STIs (e.g., chlamydia, gonorrhea, and trichomoniasis), the infection increases the concentration of cells in genital secretions thereby increasing the number of targets for HIV pathogens. Additionally, women whose sexual partners are co-infected with HIV and another STI are more likely to spread the virus to her than a partner who is only infected with HIV (CDC, 2010; Wasserheit, 1992). Specifically, men who are infected with gonorrhea and HIV have a median concentration of HIV in their semen that is 10 times higher than men with HIV only (CDC, 2010; Wasserheit, 1992). Thus, condoms play an important role in preventing HIV and STIs for African American women who are at higher risk. Other HIV risk factors for African American women are briefly reviewed next and will be discussed in more detail in the next chapter.

Why are African Americans at higher risk?

African Americans face a number of challenges that contribute to the higher rates of HIV infection. African Americans and other ethnic minorities are more likely to face social and economic inequalities which are associated with increased risk. Socioeconomic and health disparities lead to poverty, limited access to quality health care, housing, and HIV prevention

education. These factors directly and indirectly increase the risk for HIV infection and affect the health of people living with HIV.

Sexual risk behaviors, such as unprotected sex with multiple partners, with a partner who also has other sex partners, or with persons at high risk for HIV infection may occur in some communities. African Americans are at higher risk for co-infection due to the sex ratio imbalance which will be discussed in the next section. This imbalance contributes to concurrent relationships, or having more than one sexual partner in a given period. As previously discussed, the presence of certain STIs significantly increases the chance of contracting HIV infection. A person who has both HIV infection and a STI has a greater chance of infecting others with HIV than a person with only one of these infections. Injection drug use can facilitate HIV transmission through the sharing of unclean needles. Casual and chronic substance users may be more likely to engage in unprotected sex under the influence of drugs and/or alcohol and are less likely to be tested for HIV.

Lack of awareness of HIV status due to fear, mistrust of the health care system, and concerns about the testing process (reliability and validity of results, confidentiality, and anonymity) continue to increase risk among African Americans. Approximately one-fifth (21%) of people infected with HIV are unaware of their status. HIV infected persons who are unaware of their status contribute more to the bulk of new infections than those who are aware of their infection. Stigma associated with living with HIV also puts many people at higher risk. Some fear stigma more than knowing their status, choosing instead to hide high-risk behavior rather than seek counseling and testing (CDC, 2010). In summary, there are numerous social, economic, environmental, cultural, and personal factors that place African American women at increased risk for HIV (Bazargan et al., 2000; Crosby, DiClemente, Wingood, Lang, & Harrington, 2003; Faryna & Morales, 2000; Fuller, Brown, King et al., 2007; Roberts & Kennedy, 2006).

Sex-Ratio Imbalance

One factor that may influence risky sexual behavior among African American women is gender imbalance among African American adults. In general, African American women perceive that there is a lack of available African American male mates from which to choose (Doherty, Leone, & Aral, 2007). The sex ratio imbalance may be more marked in African American communities, especially urban communities for several reasons. There are higher rates of incarceration, as well as the selling and use of drugs, in these communities than in other culturally different communities (Mahay & Laumann, 2004). Also, African American women may feel that they have limited access to economically viable potential mates for marriage and lifelong partnerships given the higher levels of educational attainment and employment success for African American women than men (Fossett & Kiecolt, 1993; Garibaldi, 1997; National Center for Education Statistics, 2011). This perceived imbalance in the number of African American women and men results in fewer available male partners; therefore, women may perceive that they have less interpersonal power in relationships because men may have more sexual options available to them (Doherty, Leone, & Aral, 2007; Harris, Mallory, & Stampley, 2010; McNair & Prather, 2004).

The gender imbalance may have contributed to the spread of sexually transmitted infections (STIs) by reducing women's ability to be selective in their choice of sexual partners and to negotiate safer sex practices. These perceptions result in exposure to and relationships with men who are higher in sexual risk (Aral, 1999). Furthermore, the elevated female-male sex ratio created by the high proportion of African American men in jail may have contributed to accelerated HIV and STI transmission rates within the African American community. High HIV rates occur in communities in which the rate of incarceration is high (Adimora, Schoenbach, Martinson, et al., 2003; Doherty, Leone, & Aral, 2007; Thomas & Sampson, 2005).

In a study investigating the dating environments of African American students on college campuses, students identified the gender ratio imbalance of more women to men on campus as a key element of the campus dating environment and described how it places women at an increased risk for HIV infection (Ferguson, Quinn, Eng et al., 2006). Gender ratio imbalance contributes to concurrent relationships, or having more than one sexual partner in a given period. Moreover, concurrent relationships factor into higher rates of HIV and STDs, because earlier partners can be infected by later partners (Harris, Mallory, & Stampley, 2010).

Concurrent partnerships were reported in the Ferguson and colleagues (2006) study of students attending HBCUs. One of the themes that emerged from focus groups with students in this study was that college-educated African American women would knowingly date a male that was involved with other women. Harris and colleagues (2010) reported similar results in a community setting where under-representation of African American men resulted in African American women being unmarried and knowing that they were dating a man who was also dating other women (Adimora et al., 2003, 2004; Kraut-Becher & Aral, 2003). Thus, the gender ratio imbalance contributes to concurrent relationships, which contribute to higher rates of HIV and STDs.

Evidence is increasing that the elevated heterosexually transmitted HIV rates among the African American population are largely due to this group's closed sexual network (e.g., less likely to have sexual partners outside their race, limited availability of African American men due to incarceration) (Adimora et al., 2003, 2006; Harris et al., 2010; Laumann & Youm, 1999; Lichtenstein, 2009), increasing the likelihood of concurrent partnerships (Morris & Kretzschmar, 1997). Although there are several social, community, financial, and structural factors that place many African Americans at risk and hinder access to prevention and care, gender-ratio imbalance

continues to be a significant contributor. One way for women to protect themselves is through consistent and correct use of latex condoms as an effective means of reducing HIV risk.

Condom Use in the United States

The lack of consistent condom use is one of the most significant factors contributing to the rise in HIV infections in young adults (Roberts & Kennedy, 2006). When used correctly, latex condoms provide an impermeable barrier against HIV (CDC, 2007a). Women are notably at risk of infection from unprotected, heterosexual intercourse (i.e., sex without a condom). In 2008, over 10,000 women were newly diagnosed with HIV, and heterosexual contact was the primary mode of HIV transmission, accounting for 82% of HIV/AIDS diagnoses among women (CDC, 2010). Unprotected sex is the primary mode of transmission of HIV among African American women. Key factors that increase the likelihood of unprotected sex include negative attitudes toward using condoms, lack of recognition of personal and partner risk factors (e.g., unprotected sex with multiple partners, bisexuality, injection drug use), perceptions that condom use is not normative behavior in dating relationships, and gender inequality in relationships (Woolf, Stephen, & Maisto 2008). In sexually active women, consistent and appropriate condom use remains the single most effective measure against HIV transmission (Davis & Weller, 1999; Holmes, Levine, & Weaver, 2004; Sangani, Rutherford, & Wilkinson, 2004).

In light of the significant impact that STIs and HIV have on the U.S. health care system, successful interventions are necessary to address these infections. Condoms are the largest public health tool used in interventions aimed at preventing the spread of HIV and other STIs, as they are the only barrier method proven to be effective in prevention (CDC, 2008b; CDC, 2007a; CDC; 2005; CDC, 2003; CDC, 2007b; Davis & Weller, 1999; Holmes et al., 2004; Lazzarin, Saracco, Musicco, & Nicolosi, 1991; McNeill, Gilmore, Finger, Lewis, & Schellstede, 1998; Nicolosi,

Musicco, Saracco, & Lazzarin, 1994; World Health Organization (WHO), 2000). The Center for Disease Control and Prevention has emphasized the importance of condom use in HIV prevention and intervention programs as a mechanism for decreasing the transmission of infection (CDC, 2008b; CDC, 2007a; CDC; 2010). Several reports have indicated that correct and consistent condom use is a highly effective method for preventing HIV and STIs (CDC, 2003; CDC, 2005; Holmes, Levine, & Weaver, 2004; McNeill, Gilmore, Finger, Lewis, & Schellstede, 2008; WHO, 2000). Indeed, research has shown that consistent condom use among HIV serodiscordant heterosexual couples (one partner HIV-positive and the other is HIV-negative) resulted in an 87% reduction of HIV transmission (Holmes et al., 2004).

Although the degree of effectiveness of condoms has been unequivocal, a National Survey of Sexual Health and Behavior (2009) found that only 44.9% of men and 38.7% of women between the ages of 18-24 years reported using condoms during the past 10 vaginal intercourse events (Reece, Herbenick, Schick et al., 2010). More specifically, among this age group the rate of condom use at last intercourse was much higher with a casual sexual partner at 53.1% and 31.0% than with a steady partner at 22.2% and 20.0% for men and women, respectively. Generally, condom use is highest among African Americans and Latinos when compared to other racial and ethnic groups (Dodge, Reece, Herbenick et al., 2010). For African Americans of all ages, 33.3% of men and 35.5% of women reported using a condom during the most recent vaginal intercourse event. Further, among African Americans between the ages of 18-24, 20.5% of men and 55.3% of women reported using a condom during the last sexual encounter (Reece et al., 2010). As correct and consistent condom use continues to be one of the most cost-effective HIV prevention strategies, condom use promotion should be a primary focus for HIV prevention programs (Reece et al., 2010).

Theoretical Frameworks for Condom Use Interventions

Numerous interventions focus on promoting consistent condom use among African American women. Some of these interventions are based on the Theory of Planned Behavior (TPB; Ajzen, 1991). TPB posits that intention is the proximal determinant of future behavior, and that intention is influenced by three conceptually independent constructs: attitude, subjective norms, and perceived behavioral control. Attitude is the individual's summative evaluation of the behavior, norms reflect the perceived social pressure to perform or not perform the behavior, and perceived control reflects an individual's belief regarding the ease or difficulty of performing the behavior.

At least two interventions make use of TPB in addressing unprotected sex among African American women by focusing on increasing condom use attitudes, perceived behavioral control, intentions and behaviors. "Sisters Saving Sisters" is a single session group intervention that uses culturally appropriate videos, games, and exercises to teach Latinas and African American girls how to handle and negotiate condom use. After completing the intervention session, participants were less likely to report having multiple sexual partners at a given time and significantly fewer sexual partners overall than the control group (Jemmott, Jemmott, Braverman et al., 2006). "Female and Culturally Specific Negotiation Intervention" (Sterk, Theall, & Elifson, 2003) is also grounded in the TPB and is an intervention for African American drug users that focuses on the social context of women's daily lives to reduce sexual and drug related risk behaviors. At 6-month follow up, women who participated in the intervention were less likely to trade sex for drugs and had more consistent condom use (Sterk et al., 2003).

In summary, there are several interventions designed to decrease the frequency of unprotected sex among African American women. Generally, these interventions are theoretically-based and demonstrably effective. However, this effectiveness might be enhanced and longer-

lasting if interventions strengthened the focus on changing attitudes regarding condom use. Researchers have noted that, although interventions based on TPB use persuasion to promote behavior change, they fail to make it explicit how their techniques change attitudes (Hardeman et al., 2002). Also these interventions have not taken advantage of recent conceptions and measures of attitudes. Perhaps for this reason, condom use attitudes appear to change initially, but these results are only temporary (O'Leary, Jemmott, & Jemmott, 2008; Koniak-Griffin & Stein, 2006; DiClemente, Wingood, Harrington et al, 2004). For example, with an intervention designed to increase condom use among African American women, Sisters Informing Sisters about Topics on AIDS (SISTA), an increase in favorable attitudes toward condom use was observed immediately after the intervention, however it had dissipated by 6-month follow-up (Belgrave et al., 2008). If these temporary increases in condom use attitudes among African American women were longer-lasting, they might be accompanied by more permanent behavioral change.

What are attitudes and why are attitudes important?

Condom use attitudes can be described as the overall evaluation (e.g., good or bad, positive or negative) toward condom use. The prevailing model of attitudes, the tripartite model, posits that there are three components of an attitude: affective, behavioral, and cognitive (Breckler, 1984; Fazio, 2007). The basic premise underlying the tripartite model is that the three attitude components work in concert to create the summative evaluation of the attitude-object. Each of the three components varies on a common evaluative continuum (Allport, 1935). Affect can vary from pleasurable or positive (feeling good, happy) to unpleasurable or negative (feeling bad, unhappy) (Breckler, 1984). Behavior can range from favorable (complementary, congruent) to unfavorable (opposed, incongruent). Similarly, cognitions may vary from favorable to unfavorable (supportive vs. unsupportive arguments) (Breckler, 1984).

Condom use attitudes have not typically been conceptualized using the tripartite model, with a couple of exceptions (deWit, Victoir, Van den Bergh, 1997a; Hood & Shook, under review). These studies indicated that individuals have negative feelings toward condom use but favorable cognitions towards using condoms. Moreover, overall attitude measures were less revealing than examining the attitude components. Specifically, the strength of the attitude-behavior correlation is reduced, and attitudes are therefore less predictive, when using overall measures. The affective component of the attitude was a better predictor of participant's reported use of condoms in the past and intention to use condoms in future sexual encounters.

One of the primary functions of attitudes is to direct behavior (Fazio, 2007). Thus, one means of changing behavior is to change an individual's attitude toward the target. Sheeran, Abraham, and Orbell (1999) conducted a comprehensive meta-analysis of 121 studies and found numerous variables to be related to condom use. Condom attitudes as well as norms and intentions were most highly correlated with heterosexual condom use with effect sizes ranging from .37 to .50. Albarracin and colleagues (2005) also found that attitudinal arguments were essential in effective HIV prevention programs. Consequently, there has been a call to increase attention to attitudes and develop more strategies to increase attitudes and behavioral skills in prevention interventions.

Goal of this Research

The overall goal of the current research was to change African American women's attitudes towards using condoms through the use of persuasive messages. The current project involved three studies. The first study examined which characteristics of persuasive communications were most effective in changing attitudes toward condom use. The purpose of Study 1 was to evaluate which combination of source characteristics (male versus female) and message type (affective versus cognitive) yielded the most change in attitudes toward condom use in a sample of African American

college women. Change in condom use attitudes was compared across conditions to identify which persuasive message yielded the most increased positivity in attitude. Study 2 examined which message type and source characteristics were associated with more favorable condom use attitudes in a community sample of African American women and determined whether these findings differed from that found in a college sample. The data collected from Studies 1 and 2 were used to inform a pilot intervention designed to change attitudes toward condom use in African American women. Study 3 assessed the effectiveness of an attitude change pilot intervention. Taken together these three studies determined the extent to which message type and source influence attitudes toward condom use.

Review of Literature

The current chapter provides a review of the literature on several relevant topics. The review begins with approaches to preventing the spread of HIV. This is followed by a discussion of the theory of planned behavior (TPB), its relation to sexual risk behaviors, an overview of interventions grounded in TPB designed to prevent HIV among African American women, and critiques of TPB interventions. Next, the relation between condom use and attitudes, the influence of attitudes on behavior, the formation and underlying structure of attitudes, and persuasive methods used to change attitudes toward using condoms is discussed. The chapter ends with a discussion of how different components of a persuasive message can promote larger and lasting change in attitudes.

Approaches to HIV Prevention

In order to understand HIV prevention, it is first necessary to provide a framework for understanding prevention. According to Friedman and Silver (2007), primary prevention is the “changing of behavior to prevent an illness from occurring” (p.53). A distinction between primary prevention and secondary or tertiary prevention is that primary prevention stops the development of the disease whereas secondary and tertiary prevention focus on detecting and curing after acquisition of a disease (Hoffman & Baker, 2003). In the realm of sexually transmitted diseases, primary prevention intervention methods focus on changing women’s sexual behaviors to prevent contracting HIV or other STIs. Prevention interventions for sexual risk focus primarily on three behaviors to prevent HIV: abstinence, pre-exposure prophylaxis treatment, and consistent condom usage. Abstinence is the only foolproof method for preventing HIV and other STIs. Although abstinence prevents HIV and STIs, it has limited utility especially in adult women who are more

likely than adolescents to be in romantic relationships and to engage in sexual activity with their partners.

A relatively new alternative to preventing HIV is to undertake pre-exposure prophylaxis treatment. This method of prevention involves having HIV negative individuals take a daily dosage of antiretroviral therapy before HIV exposure and to continue taking the medications throughout the period of HIV risk. Although this prevention method is new and not yet widely used, it is consistent with a shift in HIV prevention methods from a more behavioral approach to a more biomedical approach.

Currently, the best widely available primary prevention approach to HIV and other STIs is consistent latex condom usage. For HIV and other STIs that are transmitted by genital secretions, the physical properties of latex condoms protect against infection by providing a barrier against STI-causing organisms (CDC, 2007a). Laboratory studies have shown that latex condoms provide an essentially impermeable barrier to particles the size of HIV (CDC, 2007a). Even if condoms are used improperly during intercourse, they still provide 10 times more protection than using no protection (Carey, Herman, Retta et al., 1992). More recent studies have shown that virtually all commercial latex condoms prevent leakage of HIV size particles (Pinkerton & Abramson, 1997; Weller & Davis-Beaty, 2001; 2002).

The ability of latex condoms to prevent transmission of HIV has also been scientifically established in studies with HIV status discordant couples (one partner is HIV-positive and the other is HIV-negative) (CDC, 2007a). A meta-analysis of HIV-serodiscordant couples revealed that consistent condom use can reduce the risk of HIV transmission as much as 87% (Davis & Weller, 1999). Although prevention specialists do not debate the effectiveness of latex condoms, there has been much discussion about which theoretical framework is most effective in preventing the spread

of HIV. Many of the best-evidence based interventions are framed in Information-Motivation-Behavioral Skills (Fisher & Fisher, 1992), Theory of Planned Behavior (Ajzen & Fishbein, 1977), and the Health Belief Model (Becker, 1974). One advantage the Theory of Planned Behavior has over Information-Motivation-Behavioral Skills and the Health Belief Model when studying HIV prevention is that the Theory of Planned Behavior explicitly measures attitudes, that is, it details attitudes as an important construct in the framework. Furthermore, this theory posits that attitudes directly influence intentions which in turn influence behavior (Glanz, Rimer, & Viswanath, 2008). Due to the specific focus on attitudes, this theory was used to frame the current research.

Theory of Planned Behavior

The Theory of Planned Behavior (TPB) is a social cognitive theory of value expectancy (Ajzen, 1991). The theory proposes that behavioral intention is the proximal determinant of future behavior. The model further proposes that intention is influenced by three conceptually independent constructs: attitude, subjective norm, and perceived behavioral control. This theory began as the Theory of Reasoned Action (TRA) for which attitudes and norms independently and collectively influenced intentions, which in turn influenced behavior (Glanz et al., 2008).

In both the TPB and TRA, attitudes are composed of two essential components: an individual's expectations or beliefs about the attitude object and the evaluation of those attributes (Glanz et al., 2008). These two components are calculated to determine the overall attitude, or summary evaluation of the object or behavior. Each component of an attitude (behavioral belief and evaluation of outcome) is measured on a scale ranging from -3 to +3 with bipolar anchors at each end of the scale (e.g., unlikely-likely, bad-good). The cross-product of the belief and the evaluation represents the product score for that particular outcome. The scores for each salient outcome are summed to create the computation of an individual's attitude (Glanz et al., 2008).

One of the main contributions of this theory is the understanding of the specificity by which an attitude can be measured. Research by Azjen and Fishbein (2005) leading to the theory distinguished between general and specific attitudes. General attitudes are typically characterized as attitudes toward an object whereas specific attitudes are typically toward a behavior associated with an object. For example, a person's attitude toward condoms and its relation to behavior is very different than a person's attitude toward condom use and its relation to behavior. Although the former influences the latter more specific attitude, attitudes toward condom use are more predictive of behavior, because the attitude evaluates the act of using condoms not condoms as an object. A person may have a positive evaluation of an object but dislike using it (Fishbein & Ajzen, 1974). Fishbein and Ajzen (1974) illustrated this difference while investigating breast cancer screening for women. They found that women's attitudes toward mammograms were more predictive of their screening behavior than their attitudes toward breast cancer. In sum, attitudes are composed of the summation of a person's belief about an attitude object and the evaluation of those beliefs. The more specific the attitude, the more predictive it will be of behavior.

The second component of TPB originating from the theory of reasoned action is subjective norms, or normative beliefs. Subjective norms also consist of two components: whether important people in one's life approve of one performing the behavior and whether one is motivated to comply with the expectation (Glanz et al., 2008). Subjective norms are also computed in an expectancy by value manner similar to the attitude component, providing an overall score for subjective norms. In the original theory (TRA), norms together with attitudes were directly related to intention. However, in 1991, perceived behavioral control was added as another component directly related to intentions (Ajzen, 1991).

Perceived behavioral control was added to the model to account for the fact that outside factors may influence intentions and behaviors. This feature is also broken down into two components. The first is control beliefs which are a person's belief in his or her ability to perform the behavior (Glanz et al., 2008). This concept is comparable to self-efficacy in other models. The second piece of perceived behavioral control is perceived power (Glanz et al., 2008). This involves whether the person believes that he or she has authority to perform the behavior if able. Perceived behavioral control has an indirect path to behavior through intentions as well as a direct path (Glanz et al., 2008). The direct path from perceived behavioral control to behavior has received little empirical support.

Fishbein and Ajzen posit that each component in the TPB has a direct and significant effect on intentions, or the perceived likelihood that one will perform a behavior. That is, attitudes, norms, and perceived behavior control all influence one's intentions to perform a behavior and in turn one's intentions directly influence behavior. Additionally, each of these components differentially affects intentions (i.e., the weights associated with each component differ and vary by attitude object). The relation between intention and behavior is predicted to be stronger, because it is the mechanism through which other factors influence behavior. The only other factor (other than intentions) in the model proposed to influence behavior directly is perceived behavioral control. Perceived behavioral control is posited to directly influence intentions and both directly and indirectly influence behavior. It is assumed that even if intention (motivation) is high, if an individual does not feel he/she has the power to perform the behavior it may influence behavior performance independent of intention. However, this hypothesis has received little empirical support (Ajzen, 1991; Yzer, 2007).

The TPB has received significant support from research on the adoption of many health-related behaviors, such as exercise, smoking, weight management, and cancer screening (Godin &

Kok, 1996). TPB has also been used to predict safer sex behavior (Albarracin, Fishbein, Johnson, & Muellerleile, 2001; Bogart & Delahanty, 2004; Rye, Fisher, & Fisher, 2001; Sheeran, Abraham, & Orbell, 1999). Across a variety of studies and populations, TPB has been an effective model of condom use behavior.

Theory of Planned Behavior and Sexual Risk Studies

The usefulness of the TRA and TPB models in predicting condom use intentions and behaviors have been tested among a variety of populations, including college students (Boyd & Wandersman, 1991; Chan & Fishbein, 1993; Conner, Graham, & Moore, 1999; Fisher, Fisher, & Rye, 1995; Kashima, Gallois, & McCamish, 1993; Serovich & Greene, 1997), African Americans (Jemmott & Jemmott, 1991; Stevenson, Davis, Weber, Weiman, & Abdul-Kabir, 1995), and young adults (Lugoe & Rise, 1999; Serovich & Greene, 1997; Sutton, McVey & Glanz, 1999). In a study with heterosexual college women, Fazekas, Senn, and Ledgerwood (2001) found that attitudes, subjective norms, and perceived behavioral control all significantly predicted condom use intentions, providing strong empirical support for the overall model.

Research has also indicated the importance of attitudes for the prediction of condom use and intentions, and across a number of studies attitudes have been found to be a stronger predictor than subjective norms and perceived behavioral control (Basen-Engquist & Parcel, 1992; Chan & Fishbein, 1993; Jemmott & Jemmott, 1991; Richard & van der Plicht, 1991; Wilson, Zenda, & Lavelle, 1992). Albarracin and colleagues (2001) conducted a meta-analysis on 96 datasets from 42 reports. The data included over 22,000 participants, the majority (75%) from North America. The mean age of the sample was 26 years old and the sample was 48% female. Fifty-four percent of the participants were considered at high risk of contracting HIV. The authors found that attitudes had

the strongest association with intentions, significantly stronger than both norms and perceived behavioral control.

Although a number of studies investigating the TPB components have found that attitudes are the strongest predictor of intentions, both subjective norms and perceived behavioral control are also significant predictors of intentions and behaviors. In another meta-analysis of 67 samples (most of which were undergraduate samples from the U.S.), Sheeran and colleagues (1999) found that attitudes and norms strongly predicted intentions, whereas perceived behavioral control had a moderate effect on intentions. However, perceived behavioral control has been found to be particularly significant in predicting condom use intentions with women, as condom use is not under their complete control (Crosby, DiClemente, Wingood et al., 2000). Armitage and Conner (2001) similarly found that perceived behavioral control is an important factor in predicting condom use among women. They also found that the direct path between perceived behavioral control and actual behavior was significant across multiple samples and studies (Armitage & Conner, 2001). Sheeran et al. (1999) also found support for all paths in the TPB model (including the direct path between perceived behavioral control and behavior). However, Albarracín and colleagues' (2001) meta-analysis found support for all of the paths in the model except the one from perceived behavioral control and behavior. In sum, the TPB provides a valuable framework for predicting safer sex practices, particularly consistent condom use.

Although there are many strengths of the TPB as a useful theory for predicting condom related behaviors, a few weaknesses have also been raised. One of the major critiques of the theory is that it is too rational. Ajzen and Fishbein developed careful calculations for each component making the theory organized, detailed, and easy to use. However, the human mind does not necessarily work in such a rational manner (Gigerenzer, 2007). This limits the type of behavior that

can be predicted and the accuracy of the predictions. The TPB has also been criticized for not always being appropriate for African Americans and other minority groups. This theory is based on a Western and rational model that may not always account for the relational and communal values that factor into decision making for culturally different groups (Belgrave & Allison, 2010). Another limitation is that the theory does not allow for attitudes and norms to have a direct effect on behavior. There is evidence that supports that both attitudes and norms can have a significant effect on behavior depending on the attitude object (Glasman & Albarracin, 2006). Not allowing for these direct links may limit the predictive value of the model. A final limitation is that the relation between intention and behavior is not as strong as researchers would expect. For most behaviors, the correlations between intentions and behaviors are moderate to high (.47- .62). Some researchers expect that these correlations should be higher based on model components.

Despite the limitations of this theory, TPB has been used to develop a number of evidence-based CDC endorsed interventions (Jemmott et al., 2005; 2007; Sterk et al., 2003). Interventions developed using this model have been designed to target and change beliefs surrounding a particular behavior (e.g., consistent condom use) which can affect an individual's attitudes, norms, and perceived behavioral control. Changes in attitudes, norms, and perceived behavioral control are expected to lead to changes in intentions and behaviors. As discussed next, interventions targeted at promoting consistent condom use among African American women have been developed using components of TPB (Jemmott et al., 2005; 2007; Sterk et al., 2003).

HIV Prevention Interventions for AA women

Several interventions make use of TPB in addressing unprotected sex among African American women. These include, among others, Sister to Sister, Sisters Saving Sisters, and Female and Culturally Specific Negotiation Intervention. "Sister to Sister - Respect Yourself! Protect

“Yourself! Because You Are Worth It!” is a single session intervention which can be delivered as a one-on-one or a group intervention (Jemmott et al., 2007). It uses culturally and gender appropriate videos, condom demonstrations, and role-playing activities to promote the importance of using condoms to reduce the risk of HIV and other STIs.

The “Sister to Sister” curriculum has three themes: family and community, caring, and self-worth. The family and community theme focuses on how HIV and AIDS affects the family and community and how adopting protective sexual behaviors buffers the family and the community. The caring theme focuses on how respecting and protecting oneself can empower woman, allowing them to learn to care for themselves, their family, friends, sexual partners and community. Finally, the self-worth theme focuses on loving, respecting, and believing in oneself and promoting behaviors that foster pride, self-respect, self-confidence, and self-esteem. These three themes are incorporated into eight modules that are designed to meet the four main intervention goals: a) increasing knowledge of HIV and other common STIs, b) strengthening behavioral beliefs regarding the ability of condoms to prevent HIV and other STIs, c) enhancing hedonistic beliefs about the enjoyment of using condoms during sexual encounters, and d) improving communication skills and efficacy so that women can negotiate condoms with their partner. The “Sister to Sister” intervention is conducted by a trained nurse facilitator. The curriculum employs brochures, video clips, condom demonstrations, practice with an anatomic model, and role-playing condom use or refusal of unsafe sex.

Components of the TPB are addressed in “Sister to Sister” messages and activities. Specifically, “Sister to Sister” seeks to change beliefs that condoms reduce pleasure and strengthen beliefs that condoms enhance enjoyment. “Sister to Sister” enhances perceived behavioral control by boosting beliefs regarding the ability to use condoms correctly and increasing efficacy by having

women practice putting condoms on a model. “Sister to Sister” also provides knowledge and has women engage in role playing to change normative beliefs. By addressing the determinants to intentions and behaviors, Sister to Sister has been successful at increasing intentions to use condoms in future sexual encounters and reducing incidences of unprotected sex among African American women (Jemmott et al., 2007).

Another HIV prevention intervention, “Sisters Saving Sisters” is a single session group intervention that uses culturally appropriate videos, games, and exercises to teach Latinas and African American girls how to handle and negotiate condom use. Similar to Sister to Sister, Sisters Saving Sisters addresses beliefs relevant to HIV reduction, illustrates correct condom use, and demonstrates effective condom negotiation skills. Using the principles of TPB, Sister Saving Sisters addresses beliefs about HIV risk and condom use to change intentions and behaviors surrounding condom use. Games and exercises are used to increase perceived behavioral control and condom use efficacy, thereby decreasing unprotected sexual behavior.

One more evidenced based intervention, “Female and Culturally Specific Negotiation Intervention” (Sterk et al., 2003), is also grounded in TPB and is an intervention for African American drug users that focuses on the social context of women’s daily lives to reduce sexual and drug related risk behaviors. This intervention explores the meaning of gender-specific beliefs and behaviors, social interactions, norms and values, and power and control. It emphasizes local HIV statistics, sex- and drug-related risk behaviors, and HIV risk reduction strategies to increase intentions and behavior by changing behavioral, normative, and control beliefs. Similar to the Sisters Saving Sisters, the Female and Culturally Specific Negotiation Intervention has been successful at promoting prevention behaviors in the target population. In sum, all of these interventions have shown significant increases in condom use and other prevention behaviors.

Critique of Interventions

The interventions based on TPB discussed previously are all evidenced-based and have been demonstrated to be effective in preventing HIV infection. Evidence-based HIV interventions are interventions that have been rigorously evaluated and have shown significant effects in eliminating or reducing HIV risk behaviors. Outcomes for these interventions are evaluated for short-term (e.g., immediately after intervention) and long-term (e.g., greater than 6 months) effects. There must be significant long-term reductions in HIV risk behaviors in order to be considered an evidence-based intervention (CDC, 2007a). Some of these outcomes include intentions to use condoms, condom use consistency, condom negotiation skills, number of sexual partners, attitudes toward using condoms, and new HIV infections. Outcomes are generally measured at post-intervention, 3-month, 6-month, and 12-month follow-up; different studies have different assessment points and some have even included 24-month follow-up.

Several randomized controlled efficacy trial studies have been conducted to demonstrate that behavioral interventions can reduce HIV risk as evidenced by associations with behavior and theory-based determinants of outcome behaviors (e.g., intentions) among adult women (Ehrhardt, Exner, Hoffman et al., 2002; Fisher, Cornman, Norton et al., 2006; Gollub, French, Latka, Rogers, & Stein, 2001; Hobfoll, Jackson, Lavin, Johnson, & Schroder, 2002; Jemmott et al., 2007; Kamb, Fishbein, Douglas et al., 1998; Lauby, Smith, Stark, Person, & Adams, 2000; O'Leary & Wingood, 2000; Peragallo, DeForge, O'Campo et al., 2005; Shain, Piper, Newton et al., 1999; Sikkema, Kelly, Winett et al., 2000). These intervention studies were conducted at a variety of sites, such as housing developments and other community sites, university dormitories, STI clinics, and other outpatient and inpatient health care settings. The results of these randomized studies show significant changes in sexual risk behavior, including increases in condom use (Fisher et al., 2006;

Kamb et al., 1998; Peragallo et al., 2005; Sikkema et al., 2000), reductions in unprotected sexual intercourse (Fisher et al., 2006 ; Gollub et al.; Shain et al., 1999), and reductions in biologically confirmed STI rates (Hobfoll, Jackson, Lavin et al., 1994; Jemmott et al., 2007; Kamb et al., 1998; Shain et al., 1999), among women who received the intervention.

There are several features common to all of these interventions. Each focuses on increasing efficacy around using and negotiating condoms, and heightening awareness and knowledge of HIV. They also involve role playing activities and models for practicing condom use. Some differences among the interventions include method of delivery (group vs. individual), number of sessions, source of delivery (peer-led vs. expert), activities, and whether or not there is focus on additional health promotion skills (e.g., substance abuse).

Jemmott et al. (2007) evaluated the effectiveness of the “Sister to Sister” HIV/STI risk reduction intervention as part of a larger randomized controlled trial study. The study tested two types of interventions (skill building versus information only) and two methods of intervention delivery (group versus one-on-one). The study participants were 564 African American women seeking care at an outpatient Women’s Health Clinic. The results indicated that the “Sister to Sister,” one-on-one brief skill-building intervention and the group skill-building interventions were both effective at reducing sexual risk behaviors and STI occurrence, compared to the information only conditions. These effects were sustained at 12-month follow-up (Jemmott et al., 2007). Jemmott and colleagues also concluded that the one-on-one and group skill-building interventions were equally effective in reducing HIV sexual risk behaviors among African American women (Jemmott et al., 2007). That is, the skill-building group intervention did not produce outcomes superior to the one-on-one intervention (Jemmott et al., 2007).

"Sisters Saving Sisters", another intervention based on the Theory of Planned Behavior, also reported positive behavioral outcomes at follow-up. In a study that assessed the effectiveness of the intervention, 682 sexually active adolescents girls from a medical clinic were randomly assigned to either a skills based intervention, a knowledge only condition, or a nutrition control condition. Jemmott and colleagues (2005) found that there were no significant differences between the information only and the nutrition control in reports of engaging in unprotected sex at 3, 6, and 12 month follow-up. In addition, there were no significant differences at 3 and 6 months for the frequency of unprotected sex between all three conditions. However, at 12-month follow-up, participants in the skills intervention group were less likely to report having unprotected sex and reported fewer sex partners than those in the knowledge only group and the control group (Jemmott et al., 2005). This intervention can reduce STI rates and sexual risk behaviors in African American and Latino youth.

Another best-evidenced intervention, "Female and Culturally Specific Negotiation Intervention" (Sterk et al., 2003), also grounded in TPB is an intervention for African American drug users that focuses on the social context of women's daily lives to reduce sexual and drug related risk behaviors. In a sample of 265 intravenous drug users, Sterk and colleagues (2003) found that at 6-month follow up, women who participated in the intervention were less likely to trade sex for drugs and reported more consistent condom use than a substance use prevention control condition (Sterk et al., 2003). The authors also found that women in the intervention group drank alcohol and used drugs less frequently than those in the control condition and they were more likely to use condoms with their steady partner.

What is missing in these Interventions?

Although all of the interventions discussed above are based on the Theory of Planned Behavior, not all of the components of the theory are used to frame the modules or sessions. Specifically, one component of the TPB that has not been adequately addressed in interventions is attitudes. Most condom use interventions based on TPB for African American women do not explicitly address changing condom use attitudes. Admittedly, these interventions have been proven effective. However, the effectiveness of these interventions might be enhanced and more sustainable if they also included a focus on changing attitudes regarding condom use. Although there are activities and sessions/modules designated to increasing perceived behavioral control and efficacy, there are few delineated activities or sessions designed to change attitudes. For example, the Female and Culturally Specific Negotiation Intervention does not have a specific session devoted to changing attitudes. Although Sisters Saving Sisters has messages incorporated in some of the video and other materials designed to address attitudes, it does not have a specific session devoted to attitudes.

Attitudes are also not typically assessed as sustainable outcomes. Condom use attitudes are typically reported at pre and post intervention but not during follow-up sessions. If attitudes were conceptualized and measured in HIV prevention studies using traditional social psychological attitudes approaches it could potentially strengthen the use of attitudes in HIV prevention research and practice.

In overview, TPB is a health promotion framework that is useful in promoting HIV preventative behaviors. Effective interventions to promote consistent condom use among African American women exist. Although these interventions are effective in changing intention to use

condoms and condom related behaviors, these interventions could potentially be enhanced if they included a focus on changing attitudes.

Attitudes

Attitudes, or the overall evaluation (e.g., positive or negative, good or bad) of a specific target, have long been posited as determinants of behavior (Ajzen & Fishbein, 1973; Fazio & Towles-Schwen, 1999; Glasman & Albarracin, 2006). Attitudes are characterized as an evaluative judgment and can vary in two important ways. First, an attitude can vary based on valence or direction (Eagly & Chaiken, 1998; Maio & Haddock, 2009). One can have a positive attitude towards an object or a negative attitude toward an object. Next, an attitude can vary in terms of strength. One can have a strong attitude or a weak attitude towards an attitude-object. According to Kronsick and Petty (1995), attitude strength is “a latent psychological construct that is presumably represented in memory by various attributes of the attitude” (p.3).

Although there are a variety of different factors that are related to attitude strength, most of the factors fall under two main categories: durability and impactfulness. Durability has two components. The first component includes the persistence of the attitude (stability) or the extent to which an attitude endures over time (Kronsick & Petty, 1995). The second component is resistance or the degree to which an attitude can survive a persuasive attack. Impact also has two components. The first component involves the extent to which the attitude biases information processing through accessibility. The second component of impact involves the predictability of behavior. Simply put, strong attitudes guide behavior. According to this definition, there are four defining features of strength (persistence, resistance, certainty, and accessibility). Strong attitudes typically possess all four features (Kronsick & Petty, 1995). Thus, attitudes toward condom use can vary with regard to persistence, resistance, certainty, and accessibility.

Certainty involves the degree of confidence one has about his or her attitude. Attitude certainty has been related to resistance to attack from counter arguments (Crano & Prislin, 2008). Increases in certainty have also been found to be predictive of behavior (Crano & Prislin, 2008). Accessibility refers to how easily an attitude comes to mind. Accessibility further involves the extent to which the attitude influences information processing (Fazio, 1995). Highly accessible attitudes are more predictive of spontaneous behavior (Fazio, 1995). Accessible attitudes have been linked to behavioral intentions and deliberative/controlled behavior (Ajzen & Fishbein, 1973). Finally, persistence is the consistency of reporting an attitude on multiple measures across multiple situations. Persistent attitudes are also resistant to attacks and are predictive of future behaviors (Kronick & Petty, 1995). Attitude strength is important because strong attitudes are more likely to guide behavior than weak attitudes. That is, attitudes that are highly accessible, personally important, more persistent/stable, and resistant to change are more likely to influence behavior (Holland, Verplanken & van Knippenberg, 2010; Maio & Haddock, 2010).

Kraus (1995) examined the findings of over 100 studies that investigated the relation between attitudes and behavior and found that the average correlation between attitudes and behavior was .38. These findings led Kraus to conclude that attitudes do predict behavior, but the relation is stronger in some conditions than others. One of the reasons for the low association between attitudes and behavior may be due to specification between the attitudes about an object and attitudes about performing a behavior with an object (Ajzen & Fishbein, 1977). Attitudes are more predictive of behavior when people are asked about their attitude regarding performing the behavior rather than just about the object. An example of how the specificity of attitudes influences the relationship between attitudes and behaviors was shown in a study conducted by Davidson and Jaccard (1979). With a sample of 244 married women, Davidson and Jaccard analyzed

correlations between married women's attitudes towards birth control and their actual use of oral contraceptives during the two years following the study. Women were asked a number of questions about their attitudes toward birth control ranging from very general to very specific. Davidson and Jaccard (1979) found that when the more general attitude object was used (e.g., attitude towards birth control) as the attitude measure, the correlation between attitude and behavior was not significant, $r = 0.08$. As the attitude measure became more specific (e.g., attitudes towards oral contraceptives and attitudes towards using oral contraceptives), the association rose to 0.32 and 0.53, respectively, resulting in significant relations between attitudes and behavior. Finally, when the attitude measure was very specific (e.g., attitudes towards using oral contraceptives during the next two years), significance rose still further, to 0.57. This study illustrates the importance of ensuring correspondence between the attitude and behavior, highlighting that more specific attitude objects are better at predicting behavior.

Tripartite Model of Attitudes

The prevailing model of attitudes, the tripartite model, posits that there are three potential components of an attitude: affective, behavioral, and cognitive (Breckler, 1984; Fazio, 2007; Rosenberg, Hovland, McGuire et al., 1960). The affective component refers to an emotional response or a gut reaction toward an attitude object, which can vary from pleasant (feeling good, happy) to unpleasant (feeling bad, unhappy). The behavioral component includes overt actions, direct experiences, past behavior, and verbal statements regarding behavior toward the attitude object, which can vary from favorable (complementary, congruent) to unfavorable (opposed, incongruent). Lastly, the cognitive component refers to the beliefs, knowledge structures, and thoughts about an attitude object, which can vary from favorable (supportive information) to unfavorable (unsupportive information). The basic premise underlying the tripartite model is that

the combination of the three attitude components creates the overall evaluation of the attitude object.

This model of attitudes differs from the conceptualization of attitudes used by Ajzen and Fishbein in the theory of planned behavior. According to the TPB, attitudes are composed of two essential components: an individual's expectations or beliefs about the attitude object and the evaluation of those attributes (Glanz et al., 2008). This conceptualization of attitudes focuses primarily on the cognitive component of attitudes, specifically the individuals' beliefs, knowledge structures, and thoughts about an attitude object with their evaluation of the belief (e.g., favorable to unfavorable). The conceptualization used in the TPB fails to assess how affective and behavioral information are used to create the overall evaluation. Although affective, cognitive, and behavioral information are related, each differentially influences the overall evaluation of an attitude object. The addition of affect and behavior in the measurement of attitude can strengthen the prediction of intentions and behavior.

Many studies have demonstrated the validity of the tripartite model (Breckler, 1984; Kothandapani, 1971; Mann, 1959; Ostrom, 1969; Woodmansee & Cook, 1967). Breckler (1984) conducted two studies which measured all three attitude components toward snakes and then assessed the discriminant and convergent validity of the components. He found that affect, behavior, and cognition were distinguishable components of attitudes. In addition, he found that correlations among the three components were moderate, suggesting the importance of discriminating among them (Breckler, 1984). Farley and Stasson (2003) found similar results with attitudes toward blood donation. In sum, attitudes are made of three distinct but related components. However, not all attitudes are made up of equal parts of each component; rather some attitudes are heavily based in one component or another (Edwards, 1990).

Of the three attitude components, affect and cognition tend to be the more studied determinants of attitudes because behavior is typically used as an outcome measure (Breckler, 1984). The extent to which affect versus cognition determines attitudes varies. One of the first studies to demonstrate the importance of attitudinal components explored individual's attitudes towards political candidates in the 1980 election (Abelson, Kinder, Peters, & Fiske, 1982). Participants were asked to report their feelings, beliefs, and attitudes about each presidential candidate. They found that participants' favorable affective responses towards a presidential candidate were associated with their overall evaluations above and beyond their beliefs about the candidate. Additionally, their cognitive responses were found to be independently and uniquely predictive of their attitudes demonstrating that the two components differentially contributed to the overall evaluation. Lawton, Conner, and McEachan (2009) investigated the role of affect and cognition in 14 health behaviors. They found that the affective component of attitudes significantly influenced intentions in all 14 behaviors whereas the cognitive component was influential in 11 behaviors. Additionally, Lawton and colleagues (2009) found that the affective component remained a significant predictor of 9 health behaviors even after the inclusion of intention. In the domain of political attitudes, similar results were found by Eagly, Mladinic, and Otto (1994), Haddock and Zanna (1997), and Lavine, Thomsen, Zanna, and Borgida (1998) that affect was a stronger predictor of political attitudes than cognition.

While researching intergroup attitudes, Esses and colleagues (1993) conducted a number of studies investigating the importance of affective and cognitive information in the composition of prejudicial attitudes. Significant relations were found between overall evaluations and participants' average ratings of feeling toward and beliefs about each group indicating that both affect and cognition are important in predicting prejudice. Further, Esses, Haddock, and Zanna (1993) found

that cognitive information was more predictive of strongly disliked groups whereas affective information was the best predictor of well-liked groups. These results further demonstrate that attitudes are not made up of equal parts of each component. Rather attitudes are heavily based in a certain type of information (affect, cognitive or behavioral). Thus, depending on the attitude object, affect or cognition vary as to which component is the stronger determinant of an individual's attitude. Furthermore, much of the attitudes research has endorsed the distinction between affective and cognitive components of attitudes and suggested that affect and cognition may differentially influence behavior (Abelson, Kinder, Peters, & Fiske, 1982; Breckler & Wiggins, 1991; Edwards, 1990; Lavine, Thomsen, Zanna, & Borginda, 1998; Millar & Millar, 1990; Zajonc, 1980). As such, it is important to understand the extent to which an attitude is determined by affective or cognitive information in order to accurately predict behavior.

Condom Attitudes

Within the condom use literature, there has been considerable inconsistency with which attitudes have successfully predicted condom use behaviors (Albarracin et al., 2006; Albarracin et al., 2001; Crosby et al., 2003; DiClemente et al., 2004; Sheeran et al., 1999). As a result, there has been much less focus on changing attitudes as a means of increasing condom use behaviors. Still, a number of studies have demonstrated the importance of considering condom use attitudes for predicting behavior (e.g., Albarracin et al., 2001, 2005; Duncan, Miller, Doreen, & Borskey, 2002). For example, Albarracin and colleagues (2005) found that attitudinal arguments should be an essential component of effective HIV prevention programs based on a meta-analysis of 453 intervention and control groups. Consequently, there has been a call to increase attention to attitudes and to develop more strategies to increase condom use attitudes and behavioral skills in prevention interventions (see Albarracin et al., 2006).

Some of the inconsistency and null findings regarding attitudes in prevention research may stem from the fact that attitudes have not been conceptualized and measured in ways that align with the extant attitudes literature. Generally, attitudes toward condom use have been assessed on a global level and not at the level of the attitude components. That is, affect and cognition have not been considered separately. One exception is a study by de Wit and colleagues (1997a) who used the tripartite model in the domain of condom use. Specifically, they created 10 semantic differential ratings (e.g., “using condoms makes me feel very romantic/very unromantic”) to assess the emotional aspects of condom use and 20 belief ratings (e.g., “using condoms protects very well against AIDS”) to represent the cognitive component of attitudes. Using all 30 items in a factor analysis, five factors emerged: affect, acceptability, relation, promiscuity, and protection. The 10 semantic differential ratings loaded on the affect factor, and the latter four factors were representative of the 20 cognitive or belief ratings. In this sample of 270 Belgian students, de Wit and colleagues found that students had negative feelings toward condom use but favorable cognitions toward using condoms. Furthermore, affect was more predictive of intentions to use condoms than cognition, and there was a strong relation between the affective component of the attitude and participant’s reported use of condoms in the past. Specifically, de Wit and colleagues (1997a) found affect to account for 22% of the variance in condom use attitude scores and affect was the only component significantly related to condom use intentions. In a second study, de Wit et al. (1997b) replicated these results, finding affect to be more closely related to intention than cognition.

Building upon the research of de Wit and colleagues, Sanchez-Garcia and Batista-Foguet (2007) sought to validate the two factor structure of attitudes toward condom use. Similar to de Wit and colleagues, Sanchez-Garcia and Batista-Foguet (2007) used a semantic differential type rating

scale for the affective component (e.g., Very Pleasant/Not Very Pleasant) and a belief rating for the cognitive component (e.g., Using condoms make me feel reassured). They found that the two factor model fit the data better than a single factor model and had more predictive value.

Hood and Shook (under review) also determined that measuring attitudes toward condom use using the tripartite model was significantly better at predicting both intentions to use condoms and condom use behaviors among female college students. In two studies, condom use attitudes were assessed using eight existing measures of condom use attitudes. Results from exploratory and confirmatory factor analysis demonstrated that college women's attitudes toward condom use were composed of both an affective and a cognitive component. However, affect was a stronger determinant of attitudes with participants reporting slightly negative feelings toward condom use but favorable beliefs towards using condoms. Furthermore, attitudes were significantly associated with past behavior and intentions. Notably, affect and cognition were differentially associated with behavior and intentions, with affect more strongly predicting behavior and intentions.

Another important piece of the tripartite model that could potentially add to understanding condom use behavior is the role of affect in the direct prediction of behavior. de Wit et al. (1997a; 1997b) and Hood & Shook (under review) concluded that the affective component of attitudes was more predictive of intentions than the cognitive component in both college students and adolescents. Hood & Shook (under review) also revealed that this relation existed when looking at condom use behaviors. Taken with the results of other studies that have demonstrated a direct relation between attitudes and behavior, theoretical frameworks such as TPB should add a direct path between attitudes and behavior to increase the predictive value of the frameworks.

In overview, the tripartite model of attitudes has demonstrated its utility in measuring attitudes over the single summary model method. Moreover, preliminary results when using this

model in measuring attitudes toward condom use indicate that the tripartite model of attitudes is a better predictor of condom use intentions and behaviors than the one factor model. Thus, including direct attempts to change condom use attitudes in HIV interventions may increase the effectiveness of such programs.

Persuasion

A primary means of attitude change is persuasion. Proponents of the use of persuasion to change attitudes assume that attitudes influence behavior; that is to say, if persuaders want to change the behavior of their target audience, they must alter the attitudes that are influencing the desired behavior. In this sense, persuasion can be defined as the principles and processes by which people's attitudes and behaviors are formed or modified as a consequence of others' attempts at influence (Crano & Prislin, 2006).

Carl Hovland and his colleagues (Hovland, Janis, & Kelly, 1953; Hovland & Janis, 1959) at Yale University initiated the first major program of empirical research in persuasive communication. This program generated a lot of research which continues today. Coming from a learning theory and information processing approach, the Yale group assumed that people would change their attitudes if they were provided with the stimuli (or the reinforcement) for change. In order for persuasion to take place, one had to motivate people to process information that would change their existing attitudes which in turn would lead to changes in their behavior. Their program focused on determining the key components of a persuasive message. Research from many different investigators led to the delineation of a number of factors related to three major components (the source, the message, and the audience) that were found to modify the effectiveness of a particular persuasive communication. The source refers to the mechanism or communicator that delivers the message (e.g., cartoon character or celebrity). The message is the content of the communication and

how the message is presented. For example, the message can be verbal or nonverbal and can consist of arguments (e.g., “Consistent condom use prevents the spread of HIV”) or simple cues (e.g., music or picture). The audience is the receiver or target (e.g., African American women) of the message, from which a response is expected.

Each of these factors was found to interact in a rather complex fashion so that various combinations of source, audience, and message variables led to different results. Some of the earliest research on source, message, and audience assumed that the particular variable under study (e.g., source credibility) had a unidirectional effect on attitude change (e.g., increasing credibility increased persuasion) and produced this effect by a particular process (e.g., increasing credibility fostered learning of the message arguments). Specifically, popular persuasion variables like source credibility were associated with increased influence (Kelman & Hovland, 1953) and higher number of arguments increased influence (Calder, Insko, & Yandell, 1974). Thus, in order to understand source, message, and audience effects, it is necessary to relate these persuasion characteristics back to the underlying processes promoting persuasion.

More recent models of persuasion, the Elaboration Likelihood Model (ELM) and the Heuristic-Systematic Model (HSM), have focused on how cognitive processing affects or is affected by source, message, and audience factors. Originating in the late 1970s (Chaiken, 1978; Petty, 1977), both models place a greater emphasis on the moderation and mediation effects of persuasion on attitude change. The elaboration likelihood model (ELM) and the heuristic/systematic model (HSM) are dual-process models that embody this general process of persuasive communication, attitude change, (and perhaps) behavior change (Chen & Chaiken, 1999; Petty & Wegener, 1999). Dual-process models presume that if the audience is able and properly motivated, they will elaborate, or systematically analyze, persuasive messages. If the message is well reasoned and

logical (e.g., strong), it will persuade; if it is not, it will fail. However, if the audience is unmotivated or unable to process a message, they will use communication features, called peripheral cues (e.g., an attractive source) or heuristics (e.g., “Doctors always know best”), to avoid the more effortful elaboration process in forming an attitudinal response. Information processed through the peripheral or heuristic route is less likely to influence attitudes and this influence will typically fade over time. Such attitudes are less resistant to future change attempts, less stable, and less likely to drive behavior than are those formed as a result of thorough processing. Regardless of the route of processing, message components (i.e., audience features, source type, and message quality) continue to remain important in determining the amount of persuasion that takes place (Petty & Cacioppo, 1986). Investigating the attributes of persuasive communications regarding condom use attitudes was the focus of these studies.

Audience Characteristics. Audience factors refer to any aspects that the recipient of the persuasive communication attempt brings to the persuasion situation. Specifically, audience factors refer to any characteristic a person possesses before the persuasive appeal that could influence their response to the communication.

Relevance. Perhaps the most investigated audience factor is the importance or relevance of the message topic to the target audience (Boninger, Krosnick, Berent, & Fabrigar, 1995; Crano, 1995; Haugtvedt, Petty, & Cacioppo, 1992; Sherif, Sherif, & Nebergall, 1965; Zimbardo, 1960). The primary determinant of how much a person cares about some issue is the extent to which the issue is relevant to some aspect of oneself (i.e., one’s beliefs, possessions, values, groups, etc., Boninger et al., 1995; Haugtvedt et al., 1992). In one study, Lewan and Stotland (1961) provided students with factual information about the unfamiliar country of Andorra or not, and then exposed them to a message attacking the country. People with some prior knowledge about Andorra were

less influenced by the attack than people who had no prior knowledge. Previous research has consistently demonstrated that people with high amounts of issue-relevant knowledge tend to engage in greater scrutiny of messages relevant to their knowledge than people with low amounts of issue-relevant knowledge (Wood, Rhodes, & Biek, 1995). In addition, research suggests that people with high knowledge tend to resist the influence of counterattitudinal issues more than people with low knowledge (Wood et al., 1995). Individuals with high knowledge also tend to be more accepting of proattitudinal messages (Johnson, Lin, Symons, Campbell, & Ekstein, 1995; Wu & Shaffer, 1987). Consistent with this view, Johnson, Lin, Symons, Campbell, and Ekstein (1995) found that people who found the topic personally relevant paid more attention to and were more influenced by the messages than those who did not find the messages relevant.

Need for cognition and affect. Need for cognition (NFC) is an individual difference variable that refers to the stable differences in the desire to engage in and enjoy effortful cognitive activity (Cacioppo & Petty, 1982). Individuals who are high in need for cognition enjoy cognitive activities and engage in them when given the chance. Individuals who are low in need for cognition avoid effortful thinking unless situational demands require it (Cacioppo & Petty, 1982). Cacioppo, Petty, Kao, & Rodriguez (1986) investigated the effect of need for cognition (NFC) on persuasion. The researchers presented participants who were high or low in NFC with either eight strong or eight weak arguments advocating for tuition increases at their school. After the communication, attitudes toward the proposed tuition hikes were assessed. Cacioppo et al. (1986) found that those participants who were high in NFC reported more positive attitudes about the strong arguments and less favorable thoughts about the weak arguments than those low in NFC.

Bakker (1999) conducted a study to investigate how adolescents who were classified as either high in NFC or low in NFC would respond to HIV prevention messages. A group of 119

adolescents were exposed to a cartoon or a written message about safe sex. Both messages had a positive impact on knowledge and attitudes. The findings were consistent with theory based predictions such that those who were low in NFC found the cartoon message more effective in bringing about change in attitudes and those high in NFC found the written message more effective than the cartoon message. Persuasive communications are most effective when the format of the message is tailored to people's information-processing preferences.

Need for Affect. Alternatively, need for affect (NFA) is the tendency to seek out and enjoy emotional experiences (Maio & Esses, 2001). Research using measures of personality variables has found that affective messages are more persuasive for those who are high in NFA as opposed to low in NFA and cognitive messages are more persuasive for those who are high in NFC (Haddock, Maio, Arnold, & Huskinson, 2008). Taken together, individual differences variables such as NFC and NFA can influence how an individual responds to a persuasive communication and its components.

Source Characteristics. Source variables refer to aspects of the person presenting the persuasive appeal. At times, the identity of a source might be made very salient (e.g., video message endorsing a product), and at other times, the source is merely implied (e.g., audio message announcing a new product). Traditionally, source effects have been organized according to the categories introduced by Kelman (1958) which separated source factors into effects of credibility, attractiveness, and power (see also McGuire, 1969). Kelman (1958) discussed credibility effects as the acceptance of information and integration of that information into one's existing cognitive system. Attractiveness effects are due to the salience of one's bond to or relationship with the message source. Power effects will occur if the source maintains the perception of control over

potential rewards and punishments. A variety of characteristics related to source credibility, expertise, trustworthiness, attractiveness, and similarity have been investigated.

Credibility. Perceived credibility consists of the judgments made by a message recipient concerning the believability of a communicator (O’Keefe, 2002). In one of the earliest investigations of source credibility, Hovland and Weiss (1951) presented students with a message on one of four topics (e.g., antihistamine drugs, atomic submarines, steel shortage, future movie theater) and then told them the source of the message (with the source either being high or low in credibility). In one condition, they contrasted the credibility effect of the American physicist Robert Oppenheimer with that of the Soviet newspaper Pravda by giving the same message (one with reference to Oppenheimer, the other with reference to Pravda) about the nuclear submarines. “U.S. subjects were more persuaded by the same message from Oppenheimer in those Cold War days” (Deaux, 1993). This is attributed to the fact that for the U.S. participants Oppenheimer represented a highly credible source, whereas Pravda was perceived as less credible. The overall results suggested that source credibility (collapsed across messages) yielded more attitude change; however, the credibility effect was more pronounced for the two topics that were less likely to directly influence students (e.g., who to blame for a steel shortage) than for the two topics more likely to be relevant to students (e.g., will TV decrease the number of movie theaters in operation). Thus, even early studies of source credibility provided some indications that variables such as source credibility might not operate in the same way in all circumstances.

Expertise. Highly expert sources have led to more persuasion than non-expert sources when a topic is presented as low rather than high in personal relevance (Heesacker, Petty, & Cacioppo, 1983; Petty et al., 1981; Witkin, Goodenough, & Oltman, 1979) or when a topic has little rather than great direct relation to recipients’ lives (Rhine & Severance, 1970). Chaiken and Maheswaran

(1994) showed that source expertise had a greater influence on attitudes when unambiguous strong or weak arguments were presented on an unimportant topic rather than an important topic (similar to Petty et al., 1981). More importantly, Chaiken and Maheswaran (1994) also demonstrated that an expert source (e.g., Consumer Reports) was more persuasive than a non-expert source (e.g., Kmart sales staff) under both high and low importance conditions when the arguments were ambiguous (e.g., not clearly strong or weak). When the ambiguous arguments were presented on an important topic, expertise significantly affected the valence of message-relevant thinking, but when the topic was unimportant, expertise did not affect message relevant thoughts.

Similarly, source expertise effects have been moderated by other variables thought to influence the amount of scrutiny given to persuasive messages. For example, source expertise has a greater impact when distraction is high rather than low (Kiesler & Mathog, 1968), when topic relevant knowledge is low rather than high (Wood & Kallgren, 1988), and when messages are externally paced (i.e., taped) rather than self-paced (e.g., written; Andreoli & Worchel, 1978). In another study, Moore, Hausknecht, and Thamodaran (1986) manipulated the speed at which the ad was presented, source expertise, and argument quality. They found that when the ad was presented rapidly, the audience was influenced by source expertise, but not the quality of the arguments. However, when the ad was presented at a normal pace, the influence of argument quality was increased and the influence of source expertise decreased.

Trustworthiness. Credible sources are not only knowledgeable (e.g., expert) about the topic, but are also perceived as trustworthy (i.e., likely to tell the truth; Petty & Cacioppo, 1981). Trustworthiness has been shown to have significant effects on the processing of persuasive messages. For example, Eagly and colleagues (1978) found that sources regarded as trustworthy or sincere were more persuasive than sources perceived as untrustworthy (Eagly, Wood, & Chaiken,

1978; Mills & Jellison, 1967). Similar results were found in studies conducted by Priester and Petty (1995) and Cacioppo and Petty (1982) where sources found to be untrustworthy did not significantly change attitudes.

Attractiveness. Attractiveness deals with not only physical characteristics of the source (Snyder & Rothbart, 1971), but also social characteristics such as likeability and similarity (Petty et al., 1983; Zimbardo et al., 1965). In addition, when physical attractiveness has been manipulated, the effects of physical attractiveness are mediated by likeability (Chaiken, 1990). As with other source characteristics, when attractiveness or likeableness is high, attractiveness or liking has been observed to be more influential in changing attitudes (Chaiken, 1980; Petty et al., 1983; Wood & Kallgren, 1988). For example, Puckett, Petty, Cacioppo, and Fisher (1983) presented college students with a message advocating comprehensive exams as a graduation requirement, but the time frame for any consideration of the issue at their university was left unspecified (rendering the personal relevance ambiguous). Puckett et al. (1983) found that message recipients were more influenced when the message was presented by a socially attractive rather than an unattractive source. Similar results have also been found when messages are delivered by video rather than written (Chaiken & Eagly, 1983). In each of these experiments, source characteristics have demonstrated that physically attractive sources were more effective than less attractive ones. For example, Chaiken's study of messages about university dining hall menus found that attractive persuaders had a greater persuasive effect than did unattractive persuaders (Chaiken, 1979). Experiments have also shown that people are more easily persuaded if they share some similarities with the source (Goethals & Nelson, 1973).

Similarity. A great deal of work suggests that people like other people with whom they share similar attitudes (Byrne & Griffitt, 1966) or beliefs (Newcomb, 1956) and dislike those with

whom they disagree (Rosenbaum, 1986). This source-receiver similarity has also been shown to increase persuasion (Brock, 1965; Goethals & Nelson, 1973; Cacioppo & Petty, 1982). Mackie, Worth, and Asuncion (1990) presented University of California-Santa Barbara research participants with strong or weak messages on either a topic presumably irrelevant to them (i.e., acid rain in the northeast) or presumably relevant (i.e., oil drilling off the southwest coast of the U.S.). The messages were attributed to either a UCSB student (i.e., an in-group member) or to a student of the University of New Hampshire (i.e., an out-group member). When people received the message on the irrelevant topic, the in-group source was more persuasive than the out-group source, regardless of the quality of the arguments presented. That is, when the message was low in relevance, group membership of the source acted as a simple persuasion cue. When the message was on the more relevant topic, however, message recipients processed the messages presented by the in-group source more than when the same messages were presented by the out-group source. Thus, for the more group-relevant message, similarity based on group membership influenced the amount of processing of the persuasive messages.

Source Characteristics and HIV Communications. Comparisons of source variables such as expertise, similarity to receivers, popularity, or likeableness help determine the aspects of the communicators that are most influential. HIV communications have used experts or peers to present information, based on the assumption that expertise or similarity will increase persuasiveness. Prochaska and Prochaska (2004) reported that good expert training is essential for successful sources of interventions designed to reduce smoking, high-fat consumption, and sun exposure. Moreover, in the specific domain of HIV prevention, Schaalma, Abraham, Gillmore, and Kok (2004) maintained that sex education programs must necessarily involve experts because the social skills that young people need are better learned from experts rather than parents or peers. Thus,

beyond expertise other source characteristics are important for changes in HIV prevention behaviors.

Researchers have examined the effect of celebrities disclosing their HIV-positive status and endorsing health-relevant messages (Devos-Comby & Salovey, 2002). Interest in HIV/AIDS information increased after basketball star Magic Johnson disclosed his seropositivity (Kalichman & Hunter, 1992), as did HIV testing requests (Tesoriero, Sorin, Burrows, & LaChance-McCullough, 1995). The effect of Magic Johnson disclosing his status was mostly felt in the African American community particularly among African American men (Kalichman, Russell, Hunter, & Saryer, 1993). Brown and Basil (1995) examined the mechanisms underlying celebrity effects on attitudes and behaviors. They found that knowledge of Magic Johnson's HIV status was not enough to account for increased concern or intentions to use condoms. Instead, identification with the celebrity was significantly related to more concern and increased intentions to use condoms.

An emotional connection is needed with celebrities in order for celebrities' seropositivity disclosures to affect attitudes and behaviors regarding HIV (Brown & Basil, 1995; Kalichman & Hunter, 1992). However, celebrity disclosure does increase awareness and communication surrounding HIV and AIDS, which may make people more susceptible to prevention efforts. Thus, an expert African American source would be the most influential in changing attitudes within the African American population. In sum, the source of a persuasive message is influential in changing attitudes within the African American population.

Gender and Race as Source Characteristics. Many demographic source characteristics have been studied (e.g., gender, age, and ethnicity), because of inferences of these source characteristics to similarity, credibility, and likeability. For example, demonstrating a classic effect

of source gender, Goldberg (1968) found that the scientific content of an article labeled as written by an author with a male name (John McKay) was rated more favorably than when the same article was attributed to a female (Joan McKay). The conceptual reason for this could be that during the time in which the experiment was conducted, men were traditionally viewed as experts in science. However, Levenson, Burford, and Davis (1975) found that an article written on a traditionally feminine topic was rated more favorably when attributed to a female rather than a male author. Thus, gender effects may be due to credibility, expertise, similarity, and other source factors rather than actual gender effects.

People of different ages are also likely to be viewed as differing in expertise (or in trustworthiness, power, or likeableness) on many topics, as would people of different racial and ethnic groups. Kalichman and his colleagues (1993) targeted health communications by manipulating source variables. A group of 106 African American women were randomly assigned to either watch a 20 minute video created by the Surgeon General (Caucasian) and two Caucasian women, the same video created by three African American women, or a third video that was tailored to African American women with culturally relevant references. They found that African American women were more persuaded by the culturally tailored message delivered by the African American female source than the African American expert source or the Surgeon General.

In a meta-analysis reviewing how source characteristics influence HIV prevention programs, Durantini and colleagues (2006) indicated that in addition to the expertise of the source, the gender, ethnicity, and age of the intervention facilitator influences intervention outcomes (attitudes, norms, intentions, and behaviors). First, females were more likely to change their behavior in response to female interventionists and interventionists of the same ethnic group than in response to male interventionists and to interventionists of a different ethnic group. Second, young people were more

persuaded to use condoms when the interventionists were also young than when the interventionists were older than them. Third, for African Americans interventions were more effective for people when the interventionist was also African American than when the interventionist was from another ethnicity. Thus, the findings about the influence of the source's gender, ethnicity, and age have important implications for persuasion and the designs of prevention interventions. In particular, results from this meta-analysis suggest that African American women require experts who are demographically similar to them.

Message Characteristics. Message characteristic variables refer to aspects of the communication itself. At a minimal level, a persuasive communication contains some topic (e.g., condom use) or attitude object (e.g., latex condoms) that is the focus of the influence attempt. In addition to presenting the topic of the message, the message usually takes a particular position, that includes arguments supporting the position taken, and can be organized in a variety of ways.

Message Content. One of the most studied components of a persuasive communication is its content (i.e., the kind of information included in the message). Among the content variables that have been studied is the quality of the arguments, the quantity of information presented, and whether the information is affectively based or cognitively based. Argument quality is typically assessed by the argument strength. Strong arguments are composed of logically defensible points and provide statistical or other sound evidence to support the claims that are made (Petty & Cacioppo, 1986); as a result, they elicit primarily favorable thoughts about the argument's espoused position (Eagly & Chaiken, 1993). In contrast, weak arguments employ unsubstantiated quotations, weakly supported opinions, and other specious devices that lead to primarily unfavorable thoughts about the argument's position (Petty & Cacioppo, 1986).

Petty and Cacioppo (1979) investigated how argument strength influences persuasion. Participants were presented with one of two counterattitudinal messages supporting the institution of comprehensive examinations for seniors prior to graduation. One version of the message contained eight strong arguments that were compelling and logically defensible, employing statistics and data to support the claims made. In contrast, the weak message contained eight arguments that were more open to refutation and relied on quotations and opinions for support. Petty and Cacioppo (1979) found that strong arguments generated more favorable thoughts and fewer counterarguments than did weak arguments for those who were under the impression that comprehensive exams would be implemented at their school.

Another message characteristic that is important in persuasion is argument quantity. In general, more arguments are viewed as more persuasive than fewer arguments (Petty & Cacioppo, 1984). Early research suggested that increasing the number of arguments within a persuasive communication enhances persuasion (Calder, Insko, & Yandell, 1974; Leventhal & Niles, 1965). If the arguments were strong, increasing the number of arguments (Petty & Cacioppo, 1984) or making each argument longer (Wood, Kallgren, & Preisler, 1985) increased persuasion. In two studies, Petty and Cacioppo (1984) investigated whether the number of arguments influenced persuasion. In Study 1, they found that number of arguments did influence the evaluation of a persuasive message with a communication containing nine arguments being rated more favorably than a communication containing three arguments. Similar results were found in Study 2; however, the quality of the message moderated the effect of message quantity. Participants preferred more arguments if the arguments were strong and less in number if they were weak. Though more is often better, people will stop attending to a message if it goes on and on. When participants are asked to listen to a message, they may become bored or irritated if the message continues for a

while, particularly if it is repetitive (Cacioppo & Petty, 1979). Providing someone with a few strong arguments will yield more attitude change than a large number of weak arguments (Anderson, 1974). In sum, the quality and quantity, or length, of a persuasive communication influences how the message is received by the audience.

The foundation of a persuasive communication can also be grounded in different types of information. The argument could be based in affect, with the focus of the appeal being to invoke some emotion (e.g., happiness, sadness, or anger). The argument could be based in cognition, with the purpose of the appeal being to get the recipient to think further about a subject. Lastly, the argument could be based in behavior, drawing from past experiences to guide future responses. Some researchers have argued that persuasive arguments will be more effective the more they match the way a person looks at the world. For example, people who think of themselves as religious will find arguments that appeal to religion to be more persuasive than arguments that are legalistic (Cacioppo, Petty, & Sidera, 1982). This point of view is generally compatible with functional theories of attitudes (Smith, Bruner, & White, 1956; Katz, 1960) which hold that individuals and attitude objects can differ in the attributes that are most important, and cogent arguments would be those that related best to these important attributes (Shavitt, 1989; Snyder & DeBono, 1989). Thus, attribute importance might be added to desirability and likelihood in determining argument quality.

Matching Hypothesis

Attitudes heavily based on a specific component are more influenced by messages that match the attitude base. Petty and colleagues (1986) proposed that, in general, matches to attitude structure may be more persuasive because it makes the message seem more self-relevant. This relevance may act as a persuasive cue that elicits message elaboration. Properly matching the

message with the attitude's base yields the most attitude change. Specifically, emotional (affective) appeals are more effective than appeals to reason and evidence (cognitive appeal) when the attitude is heavily based in affect. The accumulated literature demonstrates that although the three attitudinal bases (affective, cognitive, and behavioral) are interlinked, the bases of attitudes are also independent (Zanna & Rempel, 1988). The type of information used to formulate the attitude influences what information will effectively change the attitude.

In a series of studies, Edwards (1990; Edwards & von Hippel, 1995) concluded that matching was best. That is, it is better to match the persuasive appeal to the basis of the attitude than to mismatch. Edwards (1990) found that affect-based attitudes exhibited more change under affective means of persuasion than under cognitive means of persuasion. This study involved the creation of a fictitious beverage named "Power-Plus" and assessing novel attitudes based on the product (Edwards, 1990). Participants were exposed to positive affective or cognitive information about Power-Plus. After forming an initial attitude about the product, participants were then provided with either a negative affective or cognitive persuasive message. Edwards (1990) found strong evidence of a structural matching effect: The affect-based appeal was significantly more effective in changing attitudes that were affect based, whereas the cognition-based appeal was somewhat (but not significantly) more effective in changing cognition-based attitudes. Furthermore, research from other health behaviors have found that persistent attitude change occurs when the communication matches the attitudinal base (Brug, Steenhaus, Van Assema, & de Vries, 1996; Brug, Glanz, Van Assema et al., 1998).

In contrast, Millar and Millar (1990) proposed that matching persuasive messages to the recipient's attitudinal base would lead to less persuasion. They suggested that the message would be a direct challenge to the recipient's evaluation of the attitude-object which would cause reactance

rather than change. Millar and Millar's hypothesis was supported by three studies using six different types of drinks and analytical problems. These studies used very different methods and materials in testing their hypotheses, so there are a variety of reasons for the different results obtained. One potentially important difference between the two sets of studies is that Edwards (1990) used novel attitude objects about which participants had relatively little information, whereas Millar and Millar used attitude objects for which participants had already established attitudes (Olson & Zanna, 1993).

To address the inconsistencies in results from the Edwards (1990) and Millar & Millar studies, Fabrigar and Petty (1999) provided a more definitive test of whether matching persuasive messages to the attitudinal base yields more attitude change than counterattitudinal information. Fabrigar and Petty examined the effects of matching messages with the affective or cognitive attitudinal base while controlling for the valence of the persuasion. In the affective condition, participants were exposed to a novel beverage by tasting it whereas those in the cognitive condition were given information about the beverage. Then, the participant was given either the same beverage with a good/bad taste or odor (affective condition) or information about the taste (good/bad) of the beverage. Regardless of whether valence of the condition matched or mismatched the attitude, affective messages were more persuasive for those who had affectively based attitudes than cognitive messages. Using existing (previously formulated) attitudes, Huskinson and Haddock (2004) also found that affectively based messages were more effective in changing affect-based attitudes and cognitively based messages changed cognition-based attitudes, although the change in cognition was not significant.

Typically in current interventions, messages designed to change attitudes are secondary to efforts focused on behavior change. Even though they are not the primary focus of current

interventions, researchers have found that the attitudinal messages are important and can have, positive effects on condom use (Ploem & Byers, 1997). A meta-analysis on the persuasive communications used in HIV prevention programs demonstrated that attitudinal messages have a significant effect on behavior (Albarracin et al., 2003). However, the finding that messages yield change is based on interventions that included other components such as knowledge, behavioral skills, norms and perceptions. Thus, it is not clear how much influence attitudes have on HIV preventative behaviors without the presence of other factors. To date, the effect of persuasive messages on condom attitudes has not been tested without the presence of these other factors.

Summary

Current HIV interventions seek to address factors associated with condom use in order to achieve a comprehensive and successful strategy of behavior change and maintenance. Generally, these interventions are theoretically-based and demonstrably effective. One theory used to develop successful evidenced based interventions for African American women is the Theory of Planned Behavior. This theory posits that attitudes, norms, and perceived behavioral control independently and collectively influence intentions, which is a direct determinant of behavior. Interventions using this theory have been effective in increasing condom use intentions and behavior in African American women. However, effectiveness might be enhanced and longer-lasting if interventions utilized the multi-component attitudinal approach. The tripartite model of attitudes posits that there are three components of an attitude: affective, behavioral, and cognitive. By further understanding attitudes (and their components), interventionists could develop appropriate messages to change these attitudes.

Persuasive messages are comprised of three major components (the source, the message, and the audience) which influence the effectiveness of a particular persuasive communication.

Persuasion research suggests that African American women will find a message more influential when it is delivered by an African American female source. Also, messages that match the attitudinal base will result in more change in attitudes than a message that does not match the attitudinal base. Properly matching the message with the attitude's base yields the most attitude change. An intervention focused primarily on messages intended to change African American women's attitudes toward condom use must take into account the source that delivers the message and the match between the message type and the attitudinal component to be changed.

Current Research

The current project involved three studies. The first study examined which characteristics of persuasive communications are most effective in changing African American women's attitudes toward condom use. The purpose of Study 1 was to evaluate which combination of source characteristics (male versus female) and message type (affective versus cognitive) would yield the most positive change in attitudes toward condom use. Change in condom attitudes was compared across conditions to identify which persuasive message yielded the largest increase in attitudes in a college sample. The data collected from this study were used to inform the types of communications that influence changes in attitudes toward condom use.

Study 2 assessed whether the results generated from the university sample in Study 1 generalized to a community sample. African American women, who were not enrolled at a college or university, reviewed the same persuasive communications from Study 1 and were involved in a group discussion about condom use and HIV. The data collected from this study were used to examine whether college and community women were influenced by similar message characteristics when changing their attitudes towards condom use.

Study 3 assessed the effectiveness of an attitude change pilot intervention that was based on the results of Studies 1 and 2. The persuasive communication that yielded the most attitude change in Studies 1 and 2 was incorporated into a pilot intervention to assess whether the intervention could promote more positive attitudes toward using condoms and whether this change persisted over time. Taken together these three studies determined the extent to which message type and source influenced attitudes toward condom use. Moreover, this research also highlighted an important factor that is not the focus of existing HIV interventions - attitude change - which may add to the effectiveness of current interventions.

Study 1

The first study examined the effects of message type (affective versus cognitive) and source characteristics (male versus female) on attitude change to determine whether matching a persuasive communication to the prominent base from which the attitude was formed would promote larger shifts in attitudes toward condom use. Previous research on condom use attitudes has found that women's attitudes toward using condoms are more heavily based in affect than in cognition (deWit et al., 1997a; deWit et al., 1997b; Hood & Shook, under review). Furthermore, the matching hypothesis posits that persuasive communications that match the base of the attitude promote more change in attitudes than communications that do not match the base (Edwards, 1990). Previous research has also found that the source of the message is also important (Cacioppo & Petty, 1982). Audience members are more likely to pay attention to the message contents if they believe that the source of the message is credible, reliable, and is someone with whom they can identify (Brock, 1965; Goethals & Nelson, 1973; Cacioppo & Petty, 1982).

Study 1 utilized a 2 X 2 between-groups design, yielding four conditions (female/affect, male/affect, female/cognitive, and male/cognitive). Participants indicated their attitudes toward condom use before and after watching a persuasive communication promoting consistent condom use. Attitude change was assessed by examining the difference between participants' pre- and post-message condom use attitudes. Specifically, this study determined whether message type (affective, cognitive) and source characteristics (female, male) promote attitude change about condom use independently and/or interactively. To do this, persuasive videos were created that varied along these two dimensions.

Hypotheses

Hypothesis 1: An affective-based message leads to more positive change in condom use attitudes than a cognitive message. Persuasive messages are the primary method used to change attitudes. Properly matching the message with the attitude's major component yields the most attitude change. Previous research examining condom use attitudes using the tripartite model has determined that young adults' attitudes toward using condoms are heavily based in affect (de Wit et al., 1997 a & b; Hood & Shook, under review). Thus, it was predicted that the affective-based message would yield more positive change in condom use attitudes as compared to the cognitive message.

Hypothesis 2: Messages delivered by a female source lead to more positive change in African American women's attitudes toward using condoms than messages delivered by a male source. Source characteristics are an important component of persuasion. Attitude change is most likely when the source is believed to be credible and knowledgeable about the information being presented. Previous research has found that receivers of persuasive communications find it more convincing if the source of the message is someone with whom they can identify (Brock, 1965; Goethals & Nelson, 1973; Cacioppo & Petty, 1982). Females may find messages delivered by a female source more personally relevant and may be able to identify with a female source more than a male source. Thus, it was predicted that attitude change would be more prominent when the message was delivered by a female source rather than a male source.

Hypothesis 3: An affective message delivered by the female source yields the most positive change in attitudes towards using condoms when compared to all other conditions. Finally, it was predicted that there would be an interaction between message type and source characteristics. Past research has found that messages delivered by a source that the recipient is

able to identify with are more persuasive than those delivered by a less identifiable source (Brock, 1965; Goethals & Nelson, 1973; Cacioppo & Petty, 1982). Similarly, messages that match the base from which the attitude was formed are more persuasive than messages that are based in another component (Edwards, 1990; Huskinson & Haddock, 2004). Thus, it was predicted that the combination of a female source and affective message type would have an additive effect and yield the largest change in African American women's attitudes towards condom use as compared to all other conditions.

Development of Persuasive Messages

The messages for each persuasive video were created by developing 75 affective statements and 75 cognitive statements regarding condom use consistency as well as HIV and STI risk. The statements were created with the help of an undergraduate research assistant, Ms. Pearson, and Dr. Shook. The messages were created based on previous literature regarding message development in HIV prevention (see Devos-Comby & Salovey, 2002). Message characteristics considered in the construction of the messages included: the use of fear appeals, message framing, and cultural targeting of the audience. In a review of persuasive strategies used in HIV prevention messages, Devos-Comby and Salovey (2002) suggested that there are limitations for the use of threat or fear appeals. Some studies concluded that fear appeals induce the most attitude and behavior change when moderate to high levels of fear are accompanied by clear directions on how to reduce risk (Witte, 1992). However, in a meta-analysis with more than 100 articles, Witte and Allen (2000) found that in some situations strong fear appeals can cause reactance and other defensive responses resulting in no changes in attitudes and behaviors. Due to the inconsistencies in the literature on the effectiveness of fear appeals, the current messages were not designed to induce fear.

Other message characteristics were also considered in the development of the messages. Research on message framing suggests that a message framed as a gain (i.e., benefits associated with adopting a health behavior) rather than a loss (i.e., costs associated with failing to adopt a health behavior) are more persuasive. A recent study on message framing in HIV prevention among young adults found that gain-framed messages were more influential in promoting prevention behaviors such as using condoms whereas loss-framed messages were more influential in promoting detection behaviors such as testing (Garcia-Retamero & Cokley, 2011). Hull (2012) found among women that loss-framed HIV messages were more influential for women who perceived themselves to have some sexual risk whereas gain-framed HIV messages were more influential for women who perceived themselves not to be at risk. Based on previous work on message framing concluding that gain-framed messages are more influential in promoting prevention behaviors (see Rothman & Salovey, 1997), the developed messages contained mainly gain-framed statements with a few loss-framed statements to potentially grab the attention of those who perceived that they were at higher sexual risk.

In addition to message framing, message targeting was also considered in the development of the messages. It is important to consider the characteristics of the audience when creating a message that is personally relevant to them. Messages that are culturally and personally relevant are more likely to promote change in attitudes and behavior (Kalichman, Hunter, & Kelly, 1992; Wilson & Miller, 2003). To make the messages culturally and personally relevant to a college-aged African American female population, the sources in the videos were matched on race and age. The sources were also matched on student status as well as being from the local area. This allowed the message sources to use language and to communicate in a way to which the audience could relate. Also, feedback was obtained from representatives of the target population to make sure that the

messages were relatable, understandable, and relevant. Cultural targeting techniques similar to those used in Kalichman and colleagues (1993) were used to create the messages. Cultural, social, and gender specific themes that are relevant to African American women were incorporated into the messages. Cultural themes such as collectivism were illustrated through statements regarding family responsibility and protecting children. For social themes, statements regarding relational and partner barriers/support for using condoms were used. For gender relevant themes, statements centered on beauty, independence, and pride were used. Thus, the development of these messages was informed by previous research on HIV prevention message creation as well as principles of persuasion and attitude change.

After creating the initial 150 statements, the statements were ranked in terms of argument strength. Petty and Cacioppo (1986) define strong arguments as arguments consisting of logically defensible points that provide statistical or other sound evidence to support the claims that are made (Petty & Cacioppo, 1986). These types of arguments produce primarily favorable reactions about the argument's adopted position (Eagly & Chaiken, 1993). In contrast, weak arguments are composed of unsubstantiated statements, weakly supported opinions, and other unfounded claims that lead to primarily unfavorable reactions about the argument's position (Petty & Cacioppo, 1986). Previous studies have shown that strong arguments are more persuasive than weak arguments (Petty & Krosnick, 1995); therefore, the 50 strongest affective and cognitive statements were retained.

After the initial assessment of the arguments according to strength by Dr. Shook and myself, the top 50 statements in each category (i.e., affective and cognitive) were then rated by research assistants and other graduate students simultaneously along dimensions of strength and attitudinal base (affect or cognition). The raters were between the ages of 18 and 30. Seventy

percent were female and thirty percent were male. The statements that were rated highest on both dimensions were retained and compiled into two messages: an affective message and a cognitive message. See Appendix A for content of these messages.

The messages were standardized by length as studies have shown that message length can influence the persuasiveness of a message (Cacioppo & Petty, 1982). The messages were then reviewed by a different set of research assistants and graduate students to confirm strength of argument and attitudinal base. All of these raters were African American and the majority (80%) were female. Once the messages were developed, two senior African American undergraduate psychology students (one male and one female) were selected to be the source of the videos. A sample of twenty-five undergraduate students rated the message sources. The mean age was 22.69 (SD = 8.25) and seventy-seven percent were female. These students were rated by their peers as equally attractive and representative of the typical VCU student. The dress and background in each video were standardized. That is, both the male and female source were asked to wear plain black t-shirts and jeans, and all messages were video recorded in the same place with the same background. Final versions of each video recorded message were piloted using a convenience sample of psychology undergraduate students.

Seventy-four students taking courses in psychology participated in the pilot. Students were randomly assigned to view one of the four videos (female/affect, male/affect, female/cognitive, male/cognitive). After watching the videos, students were asked to rate the source and the message on characteristics known to influence persuasion (e.g., credibility, trustworthiness). There were no significant differences in ratings of the source of the video on dimensions such as attractiveness, knowledge, credibility, honesty, likability, and emotionality (all $ps > .05$). There were also no significant differences in ratings of the message on dimensions such as strength, credibility,

reliability, and importance (all $ps > .05$). There was a significant difference between messages on the dimension of emotionality, $F(2, 70) = 3.50, p = .04$, with the affective message ($M = .03, SD = .44$) rated significantly more emotional than the cognitive message ($M = -.10, SD = .35$). Thus, the persuasive videos only varied along the two intended dimensions: message type (affective versus cognitive) and source (male versus female).

Method

Participants

Participants included 167 African American female undergraduate psychology students attending a large, urban university in the Southeast. Participants received partial credit for a course research requirement. SONA, a web-based program the psychology department uses to manage recruitment, signup, credit management, and on-line surveys, was used to recruit participants. Fifteen participants were excluded from the sample for failing to read survey questions and/or following instructions. An additional six were excluded from the sample for reporting inconsistent answers (e.g., 145 sexual partners within 3 months but reporting having 0 incidences of sexual intercourse). Therefore, a total of 146 participants were included in the analyses. The G-Power software package (Buchner, Erdfelder, & Faul, &, 1997) was used to calculate power when conducting a between groups ANOVA design with four groups. The calculations based on the G-Power software suggested that estimated power for a sample of 146 is 1.0.

The mean age was 19.26 ($SD = 2.68$) years old. The majority (60%) were freshman. Most of the women were sexually active (61%), and 86 participants (62%) reported having a romantic partner. The majority of the all participants (86%) reported planning to use a condom the next time they have sex and 60% of those who are sexually active reported using condoms consistently.

Seventeen women (12%) reported contracting a sexually transmitted infection in their lifetime, and 45% had been tested for HIV.

Inclusion criteria: Only African American heterosexual women between the ages of 18 and 30 were included in this sample. Although most of the college participants were in the 18-24 year old range, the age was extended to 30 because more infections occur in the 13-29 age group than other age groups (CDC, 2011).

The 18-24 year age period (which is referred to as emerging adulthood) constitutes a distinct period in the life course for young people in predominantly Western, industrialized societies, and is different in important ways from both adolescence and adulthood (Arnett, 2000). Researchers have explored the behaviors of people in this age group and have determined that some of the risky behaviors exhibited are due to the development stage (Arnett, 2000; Erickson, 1968). People in this age group are also at a greater risk for HIV infection (CDC, 2011). In 2009, people between the ages of 13-29 accounted for 39% of all new HIV infections (CDC, 2011). Particularly, young African Americans are disproportionately affected by HIV infection; accounting for 65% of all HIV infections reported among persons aged 13–24 (CDC, 2011).

Measures

Attitudes toward Condom Use – Semantic Differential Scale. Participants' pre- and posttest attitudes toward using condoms were measured using a semantic differential scale. Semantic differential scales are the most widely used attitudes measures (e.g., deWit et al., 1997; Fazio, 2007; Osgood et al., 1957). Attitudes toward condom use were measured with six semantic differentials with endpoints bad-good, positive-negative, harmful-beneficial, unfavorable-favorable, foolish-wise, and against-in favor. The items were presented on a nine-point scale from -4 to +4 with higher numbers indicating more positive attitudes. The reliability of this measure was .89 at

pretest and .91 at posttest in the study sample. The difference between the pre- and posttest attitudes scores was the primary dependent variable for the main hypotheses.

Condom Use Attitudes. This measure was developed from an exploratory factor analysis of popular and regularly used condom attitudes measures (Brown, 1984; Campbell, Peplau, & DeBro, 1992; DeHart & Birkimer, 1997; Helweg-Larsen & Collins, 1994; Sacco, Levine, Reed, & Thompson, 1991; St. Lawrence et al., 1999) to explore whether current measures incorporated the tripartite model of attitudes (Hood & Shook, under review). The factor structure from the collection of current measures revealed that the affective and cognitive attitudinal components were represented by items from existing measures. The scale consists of 25 items (15 items representing affect and 10 items representing cognition) in which participants indicate their endorsement of each statement from 1 (strongly disagree) to 7 (strongly agree). The reliability for this measure was .97 for the sample. The reliability for the affective component was .93 and the cognitive component was .89. This measure also served as a dependent variable.

Condom Use Intentions. Intentions to use condoms were measured in two ways. First, participants were asked whether they would use a condom the next time they had sex. Response options were “yes” or “no”. Second, participants were asked if they planned to use condoms the next time one has sex. Response options were from 1 (strongly disagree) to 5 (strongly agree). These methods have been used in assessing condom use intentions (DiClemente & Wingood, 1995, 2003; Jemmott & Jemmott, 2002). Prior literature in health promotion posits that changes in attitudes are usually followed by changes in intentions (Ajzen, 1991; Fishbein & Ajzen, 1975; Glanz et al., 2008). Therefore, these items were included as secondary dependent variables in this study to determine whether the persuasive videos affected intentions. Although the messages were

designed to specifically change attitudes, it was possible that the messages would also affect participants' intentions to use condoms.

Need for Cognition. This 18-item scale gauges individual differences in a person's motivation to engage in effortful cognitive processing (Cacioppo & Petty, 1982). This individual difference measure was included because need for cognition might affect the extent to which participants think about the persuasive messages. Also, a person's level of need for cognition has been associated with his/her preference for certain types of messages (i.e., affective versus cognitive; Cacioppo & Petty, 1982). This measure was included to account for these potential effects and to ensure that this individual difference variable was controlled for across conditions. Participants use a scale from 1 (very uncharacteristic) to 5 (very characteristic) to rate the extent to which they agree with items such as "I prefer to my life to be filled with puzzles I must solve." The reliability of this measure was .84.

Need for Affect. This is a 26 item scale which assesses a person's motivation to approach or avoid emotional situations (Maio & Esses, 2001). Participants use a scale from -3 (strongly disagree) to +3 (strongly agree) to rate the extent to which they agree with items such as "I like to dwell on my emotions" and "I would prefer not to experience either the lows or highs of emotion" (reverse scored). A person's level of need for affect has been associated with his/her preference for affective messages (Maio & Esses, 2001). Therefore, this measure was included as a potential covariate. The reliability of this measure was .80 for this sample.

Demographics. Participants were asked their age, sex, year in school, ethnicity, relationship status, sexual orientation, and whether they were sexually active.

Procedure

Upon arriving at the lab, participants were seated in individual cubicles and informed that the purpose of the experiment was to develop effective HIV prevention techniques. To do this, they would watch one of the previously developed videos about condom use (see Appendix A) on a computer while wearing headphones and complete questionnaires about their attitudes, beliefs, and experiences with using condoms. The participants were informed of confidentiality and their right to end their participation the experiment at any time. If there were no questions, participants were asked to sign the consent form.

After consent, participants were asked to complete the Pretest Attitude toward Condom Use Semantic Differential scale to get an initial assessment of attitudes toward condom use. All questionnaires were completed on a computer using MediaLab software. Following this, participants were randomly assigned to one of four conditions. In each condition, the participant watched a persuasive video about the use of condoms. Included within these videos were the manipulations of message type and source. Seventy-four participants received messages containing all affect-based arguments, and the other seventy-two received messages containing all cognition-based arguments. Seventy-six of the participants received the communication from a female peer, and the other seventy from a male peer.

After watching the videos, participants were asked to complete the following questionnaires: Condom Use Attitudes, Need for Cognition, Need for Affect, Posttest Attitude toward Condom Use Semantic Differential scale, Condom Use Intentions, and Demographics. After completing all assessments, participants were debriefed, thanked, and given credit.

Results

Descriptive Statistics

Descriptive statistics for the primary variables of interest in Study 1 are presented in Table 1. Before proceeding with tests of the study's main hypotheses, it was necessary to ensure that the data met all assumptions of normality, linearity, and homogeneity of variance. Both Pretest (Skewness = -3.03 $SE = .20$, Kurtosis = 10.66 $SE = .40$) and Posttest (Skewness = -3.40 $SE = .20$, Kurtosis = 13.49 $SE = .40$) attitudes toward using condoms were found to be negatively skewed and kurtotic. In order to correct for this, a reflect inverse transformation was performed on the pretest and posttest attitude variables. Following transformations, the new variables demonstrated improved fit statistics (Skewness = -1.34 $SE = .20$, Kurtosis = .59 $SE = .40$, and Skewness = -1.59 $SE = .20$, Kurtosis = 1.25 $SE = .40$, respectively), so subsequent analyses were conducted using the transformed variables.

Correlational analyses were conducted to see if there were any potential covariates (see Table 2). Previous research on persuasion suggests that individual differences in preference for dealing with emotions and cognitive thought can influence a person's preference for message type (Cacioppo & Petty, 1982; Maio & Esses, 2001). In addition, research in HIV prevention has suggested that relationship status, relationship length, current sexual activity, and age can influence attitudes toward using condoms. Correlational analyses were conducted to see if any of these factors were related to the dependent variables of interest. The results of the correlational analyses revealed that there were no associations between these potential covariates and the main dependent variables (all $ps > .26$). Also, none of the potential covariates differed by condition. Therefore, no covariates were included in the final analyses.

Table 1

Descriptive Statistics for Study 1

Variable	<i>N</i>	<i>M</i>	<i>SD</i>	<i>SE</i>
How old are you?	146	19.26	2.68	0.22
Need for Affect	145	3.44	0.53	0.04
Need for Cognition	146	3.33	0.61	0.05
Attitudes toward Condom Use (SD)	146	0.01	0.46	0.02
Condom Use Attitudes Scale	146	5.23	0.87	0.07
Plan to use condoms next time you have sex	146	4.24	0.73	0.08
Are you currently sexually active?	146	1.39	0.49	0.04
Have you ever had a sexually transmitted disease or infection?	146	1.89	0.32	0.03
How would you describe your current relationship status?	146	1.28	0.32	0.02
Do you currently have a romantic partner?	146	1.38	0.49	0.04
How long have you and your romantic partner or spouse been together? (In months)	88	19.41	20.49	2.18
The next time you have sex do you plan to use a condom?	146	1.14	0.34	0.03
In your lifetime have you ever been tested for HIV?	146	1.55	0.50	0.04

Table 2

Correlations between Dependent Variables and Potential Covariates in Study 1

Variable	CUA	CUA Affect	CUA Cognition	ATCU (Difference Score)
Age	-0.09	-0.11	-0.01	0.14
Year in school	-0.13	-0.14	0.001	0.01
Sexually Active	0.12	0.14	-0.003	0.15
Ever had a STI?	0.11	0.14	-0.01	0.07
Current relationship status	0.13	0.13	0.06	0.13
Romantic Partner Status	0.13	0.15	0.02	0.13
Relationship length (In months)	-0.12	-0.06	-0.15	-0.07
NFA	0.01	0.02	0.01	0.01
NCS	0.06	0.02	0.14	0.03

Note. $N = 146$; CUA = Condom Use Attitude Measure, ATCU= Attitude toward Condom Use Scale, NFA= Need for Affect Scale, NCS= Need for Cognition Scale
* $p < .05$, ** $p < .01$

Tests of Main Hypotheses

The main purpose of the current study was to test the effects of message type and source characteristics on changes in attitudes toward condom use. The primary dependent measure was change in participants' attitudes before and after the persuasive communication. Prior to computing the semantic differential difference score, pretest and posttest attitudes were standardized following the transformations. Standardized pretest attitudes toward condom use scores were then subtracted from the standardized posttest attitudes scores creating semantic differential difference scores. Positive difference score values indicated that posttest attitudes were more positive than pretest attitudes. Negative difference score values indicated that posttest attitudes were more negative than pretest attitudes. A difference score of zero indicated no change in attitudes from pretest to posttest.

A between subjects analysis of variance (ANOVA) was conducted to examine both main and interactive effects of message type and source characteristics on condom use attitude difference scores. The design was a 2 X 2 between-groups design, with four conditions (female/affect, male/affect, female/cognitive, male/cognitive). Results revealed that there was a significant main effect for message type, $F(1, 142) = 4.36, p = .04, \eta^2 = .03$. The affective message ($M = .08, SD = .52$) yielded more positive change in attitudes than the cognitive message ($M = -.07, SD = .38$). There was also a main effect for source, $F(1, 142) = 6.24, p = .01, \eta^2 = .04$. The message delivered by the female source ($M = .10, SD = .45$) yielded more positive change than the message delivered by the male source ($M = -.09, SD = .45$). The interaction between message type and source characteristics was not significant, $F(1, 142) = .68, p = .41, \eta^2 = .005$. However, the pattern of the means aligned with the hypothesized interaction. The affective message delivered by the female source ($M = .14, SD = .51$) resulted in the most positive change in attitudes followed by the cognitive message delivered by the female source ($M = .05, SD = .39$). The affective message delivered by the male source ($M = .02, SD = .53$) resulted in little change in attitudes, and the cognitive message delivered by the male source ($M = -.20, SD = .32$) resulted in the least positive change (see Figure 1).

In order to assess whether the attitudinal components of condom use attitudes were affected by the persuasive videos, additional between subjects ANOVAs were conducted using the subscales of the Condom Use Attitudes scale, which was assessed after the persuasive video. Specifically, the affective and cognitive components of attitudes were assessed to determine whether these the components varied based on the message or source characteristics. For the affective component of the attitudes measure, the findings revealed that there was a significant main effect for message type, $F(1, 142) = 4.10, p = .04, \eta^2 = .03$. The affective message ($M = 4.94, SD = .96$) resulted in

more positive affect toward condom use than the cognitive message ($M = 4.60, SD = 1.02$). The source of the message did not significantly influence affect toward condom use, $F(1, 142) = 2.99, p = .09, \eta^2 = .02$. The interaction between message type and source characteristics was also not significant, $F(1, 142) = 1.03, p = .31, \eta^2 = .007$.

Results for the cognitive component revealed that there were no significant differences between conditions or message type, $F(1, 142) = 3.11, p = .08, \eta^2 = .02$, or for source characteristics, $F(1, 142) = 3.23, p = .07, \eta^2 = .02$. However, the pattern of the means showed that participants who watched the video with the affective message delivered by the female source ($M = 6.15, SD = .82$) reported more favorable cognitions about using condoms followed by participants who watched the cognitive message delivered by the female source ($M = 5.86, SD = .88$) and the affective message delivered by the male source ($M = 5.86, SD = .75$). The cognitive message delivered by the male source ($M = 5.64, SD = 1.01$) resulted in the least favorable cognitions regarding condom use.

The complete Condom Use Attitude scale (composite of the affective and cognitive components) was also used to determine whether posttest attitudes differed between conditions. The findings indicated that there was a significant main effect for message type, $F(1, 142) = 4.16, p = .04, \eta^2 = .03$. The affective message ($M = 5.53, SD = .83$) resulted in more positive attitudes toward using condoms than the cognitive message ($M = 5.08, SD = .90$). There was also a main effect for source, $F(1, 142) = 4.66, p = .03, \eta^2 = .03$. The message delivered by the female source ($M = 5.37, SD = .80$) resulted in more positive attitudes toward using condoms than the message delivered by the male source ($M = 5.07, SD = .91$). The interaction was not significant, $F(1, 142) = .71, p = .40, \eta^2 = .005$. However, the pattern did match the hypothesis with participants watching

the affective message delivered by the female source reporting the most positive attitudes toward using condoms (see Table 3 for means).

Intentions to use condoms the next time one has sex was also assessed to see if intentions varied by condition. A logistic analysis was conducted using the dichotomous intent to use condoms question. Message type and source did not significantly influence intentions, $X^2(2, N=146) = 5.15, p = .08$. Intentions were also assessed using an item asking participants whether she planned to use a condom the next time she has sex. Using a between subjects ANOVA, it was found that there were no significant differences for message type, $F(1, 142) = .46, p = .50$, or for source characteristics, $F(1, 142) = 1.22, p = .27$. The interaction was also not significant, $F(1, 142) = .17, p = .69$.

Table 3

Attitudes and Intentions by Condition for Study 1

Variable	<i>N</i>	<i>M</i>	<i>SD</i>	<i>SE</i>
<i>N</i> = 146				
Attitude toward Condom Use (Difference Score)	146	0.01	0.46	0.02
Female/Affect	38	0.14	0.51	0.04
Female/Cognitive	38	0.05	0.39	0.03
Male/Affect	36	0.02	0.53	0.07
Male/Cognitive	34	-0.200	0.32	0.05
Condom Use Attitude Scale	146	5.23	0.87	0.07
Female/Affect	38	5.57	0.79	0.13
Female/Cognitive	38	5.17	0.77	0.12
Male/Affect	36	5.15	0.79	0.13
Male/Cognitive	34	4.98	1.03	0.18
Affect	146	4.77	1.00	0.08
Female/Affect	38	5.15	0.93	0.15
Female/Cognitive	38	4.71	0.86	0.14
Male/Affect	36	4.71	0.94	0.16
Male/Cognitive	34	4.54	1.19	0.20
Cognition	146	5.88	0.88	0.07
Female/Affect	38	6.15	0.82	0.13
Female/Cognitive	38	5.86	0.88	0.14
Male/Affect	36	5.86	0.75	0.13
Male/Cognitive	34	5.64	1.01	0.17
Intent to use condom at next sexual intercourse	146	1.14	0.35	0.03
Female/Affect	38	1.05	0.23	0.04
Female/Cognitive	38	1.13	0.34	0.06
Male/Affect	36	1.14	0.35	0.06
Male/Cognitive	34	1.24	0.43	0.07
Plan to use condom at next sexual intercourse	146	4.24	0.73	0.08
Female/Affect	38	4.23	0.89	0.13
Female/Cognitive	38	4.15	0.76	0.11
Male/Affect	36	4.24	0.65	0.13
Male/Cognitive	34	4.44	0.71	0.17

Figure 1

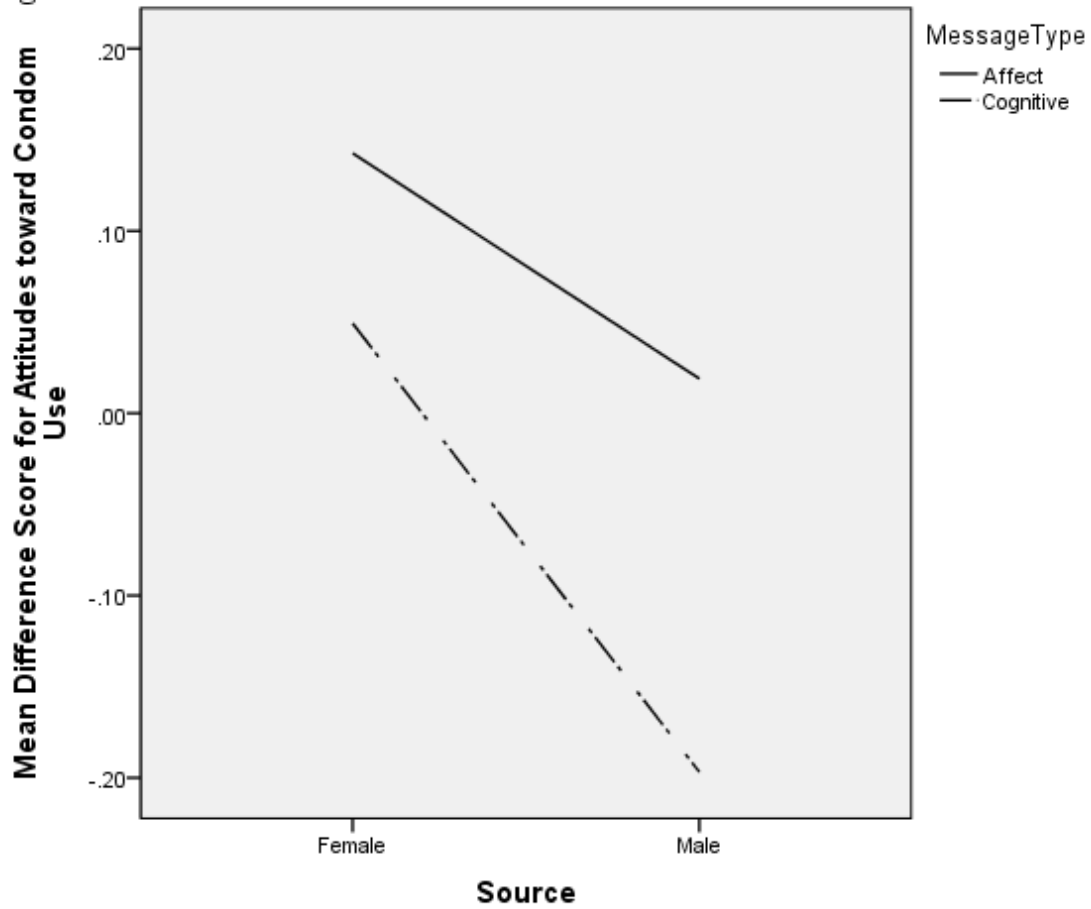


Figure 1. Condom use attitude difference scores as a function of message type and source characteristics (Study 1).

Conclusion

Using principles from the matching hypothesis, the purpose of Study 1 was to determine whether matching a persuasive communication to the base from which the attitude was formed would yield more change in attitudes than a communication that did not match the base of the attitude. Additionally, Study 1 sought to determine whether the source of the communication would independently influence attitude change following a persuasive communication.

Hypothesis 1 predicted that persuasive messages based in affect would yield more positive attitudes toward condom use than messages based in cognition. The results of Study 1 supported this prediction. Specifically, the affective message yielded more positive change in pre-to-post condom use attitudes than the cognitive message. Previous research on condom use attitudes has found that women's attitudes toward using condoms are more heavily based in affect than in cognition (deWit et al., 1997a; deWit et al., 1997b; Hood & Shook, under review). Furthermore, the matching hypothesis posits that persuasive communications that match the base of the attitude promote more change in attitudes than communications that do not match the base (Edwards, 1990). When the attitudinal components were assessed during posttest, more positive affect toward using condoms was reported from participants who watched the affective message than the cognitive message. Significant differences were not found between messages for the cognitive component of attitudes. The cognitive component is generally more positive, so strong pro-attitudinal messages may not be as effective at making already positive beliefs more positive. Alternatively, previous research has found that the affective component of condom use attitudes is generally less positive (de Wit et al., 1997 & Hood & Shook, under review), which would suggest that changing the affective component of condom use attitudes may be more important. Furthermore, this may be especially critical as the affective component of condom use attitudes tends to be more strongly

related to behavior. The results of this study provide further support for the matching hypothesis as well as the importance of looking at attitudes in terms of its components.

Study 1 also examined whether the source of a persuasive communication influences the amount of change in attitudes. It was hypothesized that a message delivered by a female source would be more persuasive than the same message delivered by a male source. The source of the message significantly influenced condom use attitude difference scores such that the message delivered by the female source promoted more positive change than the message delivered by the male source. On the Condom Use Attitudes scale, participants who watched the message delivered by the female source reported more positive overall attitudes than those who watched the message delivered by the male source. These findings are consistent with research by Carl Hovland and the Yale Group that found that communications are more convincing if the source of the message is someone with whom they can identify (Hovland, 1950; Brock, 1965; Goethals & Nelson, 1973; Cacioppo & Petty, 1982).

Condom use intentions were also assessed to determine whether the persuasive videos influenced intentions. The findings showed that participants did not report differences in intentions to use condoms between conditions. The messages in this study were designed to specifically change attitudes. Thus, it was not necessarily surprising that intentions did not differ by condition. However, with the theoretical link between attitudes and intentions, it was possible that the messages could have also influenced participants' intentions to use condoms.

Finally, an interactive effect for message type and source was also predicted. The interactive effect of message type and source characteristic did not significantly influence pre-to-post condom use attitudes. An interactive effect was also not found using the Condom Use Attitudes scale. However, with both attitude outcome measures, a pattern emerged in the expected

direction with the affective message delivered by the female yielding the most positive change in attitudes; but this was not significant.

Although the main effects for source and message type were found in a sample of African American women attending college females, this group only makes up a subset of the target population. African American women not in college may respond differently to persuasive messages than those attending college. Women in college may pay attention to different aspects of a message and find a message more persuasive than someone who is not attending college. Previous research has found that college attendance is a protective factor for sexual risk behaviors (Bailey, Fleming, Henson, Catalano, & Haggerty, 2008). As such, the results from Study 1 may not have generalized to the greater population of African American women. Thus, it was important to determine whether African American women who are not attending college would respond to the messages in a similar manner as women attending college. To determine whether there were differences between African American women attending college versus those who were not, Study 2 examined the persuasiveness of the messages in a community sample.

Study 2

College and community African American women in the emerging adulthood stage face similar issues in relation to sexual health. They are exposed to identical messages from the media about condoms and other educational messages about sexual health. These women share similar norms, values, and pool of potential partners. However, there are differences in sexual behavior between college and non-college women. Bailey, Fleming, Henson, Catalano, and Haggerty (2008) conducted a study with 834 participants (45% attending college). Among those who reported recent sexual activity, 34.6% of the non-college sample and 23.2% of the college sample reported inconsistent condom use. College attendance was a significant protective factor against both inconsistent condom use and other high risk sexual behavior. Thus, it was unclear whether the persuasive messages that were effective at changing condom use attitudes among college students in Study 1 would be effective in a non-college sample.

Study 2 was conducted to determine whether similar characteristics of the message and source promoted positive change in condom use attitudes among a community sample of African American women. Women from the local community were randomly assigned to view one of four videos (affective/female, affective/male, cognitive/female, or cognitive/male) and then rated the video based on the source and message ratings described in Study 1. Women also reported on their attitudes and sexual behaviors. After watching the video and completing the brief questionnaire individually, women participated in a group discussion about HIV prevention messages and what characteristics of such messages are most influential for African American women.

The specific aim of this study was to examine which combination of source characteristics (male or female) and message type (affective or cognitive) yielded the most change among African American women from the community. Further, the study sought to examine whether college and

community women were influenced by similar message characteristics when changing their attitudes towards condom use. Change in condom use attitudes was compared across conditions to identify which persuasive message yielded the largest shift in attitude. Transcripts from group discussions were also reviewed to better understand what characteristics of condom use messages the participants believed were most effective.

Hypotheses and Research Question

Hypothesis 1: Affective-based messages leads to more positive change in condom use attitudes than cognitive messages. Research examining condom use attitudes using the tripartite model has determined that women's attitudes toward using condoms are heavily based in affect (de Wit et al., 1997; Hood & Shook, under review). In keeping with Study 1, it was predicted that the affective-based message would lead to a larger change in attitude towards using condoms than the cognitive message.

Hypothesis 2: Messages delivered by a female source leads to more positive changes in women's attitudes toward using condoms than the male source. Research has found that receivers of a persuasive communication find it more convincing if the source of the message is someone with whom they can identify (Brock, 1965; Goethals & Nelson, 1973; Cacioppo & Petty, 1982). It was predicted that attitude change would be greater when the message was delivered by a female source than a male source.

Hypothesis 3: The affective message delivered by the female source yields the most positive change in African American women's attitudes towards using condoms. Previous research has revealed that messages delivered by a source that the recipient is able to identify with are more persuasive than those delivered by a less relatable source (Brock, 1965; Goethals & Nelson, 1973; Cacioppo & Petty, 1982). Similarly, messages that match the base of the attitude are

more persuasive than messages that are based in another component (Edwards, 1990; Huskinson & Haddock, 2004). Thus, it was predicted that the combination of a female source and affective message type would yield the largest change in African American women's attitudes towards condom use than the other three conditions.

Research Question: What types of messages do African American women believe are most effective in changing attitudes toward using condoms? The goal of the focus group discussions was to gain a better understanding of women's perceptions about what types of messages they believe would be most effective in changing attitudes in this population.

Methods

Recruitment

Participants were recruited using several strategies: posting flyers at community agencies that serve African Americans, word-of-mouth, and Craigslist. Flyers were posted at several community organizations that have previously worked with VCU (e.g., Richmond Behavioral Health Authority, East End Family Resource Center, and Capital Area Health Network). Staff members at these organizations were asked to distribute flyers to African American women. The flyer briefly described the study, indicated the time commitment, noted the compensation, and provided contact information in order for interested individuals to call and schedule a time for the focus group or ask questions. An announcement was also posted on Craigslist with a phone number and email address for interested participants to call/e-mail to ask questions or schedule a time for the study session.

Participants

A total of 27 African American women ages 18-30 ($M_{\text{age}} = 25.54$, $SD = 4.67$) from the community participated in one of seven group sessions. The majority of the women were sexually

active (69%), and 19 participants (66%) reported having a romantic partner. A third (30%) had completed some college, 22% had an associate's degree, and 19% had a bachelor's degree.

Inclusion Criteria: Only participants identifying as African American heterosexual women were included in this study. Participants must have been between the ages of 18 and 30 to participate in the study and were limited further to exclude any African American women who were currently students at a college or university. Four women over the age of thirty and ten college students expressed interest in the study. These women were told that they were not eligible to participate in the study during the screening process. Individuals who did not speak English fluently were also excluded from the study. This was determined during screening by a series of questions (i.e., What is your primary language? Do you speak English fluently?). In order to differentiate between the persuasive messages, a certain level of understanding of the English language is required. No women were excluded based on the aforementioned criteria.

Although this sample was not large enough to reach statistical power, data from the four conditions were obtained in order to assess trends to determine whether the patterns were similar to what was found in the college sample. The four conditions in this study consisted of (female/affect, male/affect, female/cognitive, male/cognitive).

Procedure

All sessions for Study 2 were held at the Center for Cultural Experiences in Prevention at Virginia Commonwealth University. Participants were informed that the purpose of the session was to help the researcher to develop effective HIV prevention techniques. They were told that this would involve watching a short video about condom use, completing questionnaires, and engaging in a group discussion. They were also informed of confidentiality and their right to end the session at any time. Participants were given the opportunity to ask questions, and then signed a consent

form. The women were then randomly assigned to watch one of four videos (affective/female, affective/male, cognitive/female, and cognitive/male). The video and all assessments were completed individually on a laptop using headphones. Prior to watching the video, condom use attitudes were assessed using the Attitudes toward Condom Use Semantic Differential. The video was then shown.

After watching the video, the participants individually completed the following questionnaires: Ratings of Message and Source, Condom Use Attitudes scale, Need for Affect, Need for Cognition, Posttest Attitude toward Condom Use Semantic Differential, Condom Use Intentions, Sexual Behavior History, and Demographics. All measures were identical to those used in Study 1. Once the questionnaires were completed, participants were seated in a conference room where refreshments (e.g., juice, fruit, and chips) were served.

After completing the video message assessments women participated in a focus group discussion. A total of seven semi-structured focus groups were conducted in groups of 3 to 8 individuals. The focus groups were conducted in the conference room at the Center for Cultural Experiences and Prevention at VCU. The primary researcher facilitated all focus group discussions. The focus group discussions were digitally recorded with the participants' permission. Participants also completed a short survey that included demographic information such as age, occupation, education, marital status, and number of children at the end of the focus group discussion. The sessions took approximately 1.5 hours, and participants received \$20 for their participation.

Focus Group Questions

The primary objective of the focus groups was to gain a better understanding of women's perceptions about what types of messages they believe would be most effective in changing attitudes in this population. The questions were created with the goal of exploring the types of

messages that influence sexual behavior and condom use among emerging adult African American women. Participants were asked about the types of condom use messages they had been exposed to and whether they believed the messages to be effective (see Appendix L for a complete list of focus group questions). Participants were asked about the source of condom use messages, the characteristics of the messages, as well as the delivery method of messages they had seen. Last, women were asked about whether they thought these messages were effective and what they believed an effective message would look like.

Transcript Coding and Qualitative Analysis

The principles of thematic analysis were used in this study. Thematic analysis is one of the most commonly used methods of qualitative analysis (Braun & Clarke, 2006) and involves searching through data to identify any recurrent patterns (Benner, 1985; Leininger, 1985; Taylor & Bogdan, 1984). In *Transforming Qualitative Information*, Boyatzis (1998) wrote that thematic analysis is a process of “encoding qualitative information” (p. vii). Through his writing, he demonstrated that although there are a variety of approaches to using thematic analysis, researchers can achieve the same rigor using thematic analysis as in other qualitative methods.

As per Creswell’s (2005) suggestion, Colaizzi’s (1978) procedure for qualitative data was incorporated with the principles of thematic analysis to achieve rigor. The steps include: 1) transcribing the focus group audio recordings verbatim which includes any field notes that were taken by the assistant during the focus groups about the contextual cues and experiences not conveyed in the recordings, 2) analyze, (i.e., code) each transcript by using the Nvivo 8® software program (QSR International, 2008), 3) select statements from each transcript to capture themes consistent with the research questions, 4) formulate meanings from the statements and organize meanings into themes, 5) compare transcripts with the compiled themes to validate the findings, and

6) select quotes from the original transcripts to support the primary themes and help validate the findings.

Four undergraduate research assistants were trained to transcribe the focus group recordings. Each focus group recording was transcribed into Microsoft Word documents. Each focus group recording was assigned to two assistants for transcribing and one different assistant for verification. Assistants were instructed to transcribe the focus groups verbatim, including all superfluous speech such as “umm”, “ahh,” “hmm,” etc. as well as any cross talk and side conversations between focus group members. In addition, assistants were given the field notes to include with the transcriptions.

Once the research assistants had transcribed all of the focus groups, another assistant proofread each transcript to verify the accuracy of the work. The transcripts were verified using a process where an assistant would simultaneously listen to the digital recording of the focus group while reading the corresponding transcript. Any differences in interpretation over audio were decided as a group and verified by the researcher.

After the transcripts were completed and verified, the next step was to code the transcripts using the Nvivo 8® software program (QSR International, 2008). Codes are considered labels for assigning units of meaning to descriptive information. Units of meaning can include single words, phrases, sentences, or entire paragraphs (Huberman & Miles, 1994). Codes were assigned according to the significance of the statement within the context of the information, along with the conceptual framework that guided the research question (Huberman & Miles, 1994). The codes were determined according to their frequency of occurrence among the transcripts and the amount of detail that was provided around similar ideas or concepts. An advanced undergraduate assistant trained in qualitative analysis and the researcher first independently reviewed three focus group transcripts and identified common codes. After the independent review, the researchers met and

discussed the codes and a coding structure was identified. A team of three researchers then each read a selected number of focus group transcripts and coded them according to the classified coding structure. Two readers independently analyzed the transcriptions of each of the seven focus groups. The level of agreement between the readers in their initial categorization was 92%. A k statistic was also calculated to assess reader agreement; it indicated moderate to high concordance ($k = .72$). Any coding discrepancies were handled by the two readers reviewing and discussing inconsistencies before agreeing upon a final categorization.

After the codes were verified, they were consolidated into six major themes that could succinctly account for all of the information that was consistent with the research questions. A theme is a cluster of linked categories conveying similar meaning that emerges through the inductive analytic process which characterizes the qualitative paradigm. The themes were determined according to how well the content of the previously-created codes related to one another and their relevance to the research question. The names for the themes were also derived from the content of the original transcripts. The transcripts were compared with the compiled themes several times to support the findings. Next, quotes were selected from the original transcripts to support the primary themes and help validate the findings. Finally, two research assistants reviewed the primary themes and selected quotes to confirm that the themes and the selected quotes were consistent with original coding.

Results

Descriptive Statistics

Descriptive statistics for the primary variables of interest in Study 2 are presented in Table 4. All variables of interest met the assumptions of normality, linearity, and homogeneity of variance, making it appropriate to run analyses with these data in their original form.

Tests of Main Hypotheses

The main purpose of the current study was to examine whether college and community women were influenced by similar message characteristics when changing their attitudes towards condom use. Further, the study examined which combination of source characteristics (male or female) and message type (affective or cognitive) yielded the most change among African American women from the community. As in Study 1, the main dependent measure in the analyses was a change in participants' attitudes assessed before and after watching the persuasive communication. For continuity across studies in reporting results, the attitude change difference score was standardized. To compute the difference score, the standardized pretest attitudes toward condom use was subtracted from the standardized posttest attitudes. Positive difference score values indicated that posttest attitudes were more positive than pretest attitudes. Similarly, negative difference score values indicated that posttest attitudes were more negative than pretest attitudes. A difference score of zero indicated no change in attitudes from pretest to posttest.

The current study utilized a 2 X 2 between-groups design, yielding four conditions (female/affect, male/affect, female/cognitive, male/cognitive). To examine both main and interactive effects of message type and source characteristics on condom use attitude difference scores, a between subjects analysis of variance (ANOVA) was conducted. Results revealed a similar pattern of results as Study 1. However the results were not statistically significant likely due to the small sample size. Although not significant, $F(1, 23) = .35, p = .56, \eta^2 = .02$, the pattern of means suggested that the affective message ($M = .11, SD = 1.09$) yielded more positive change in attitudes than the cognitive message ($M = -.14, SD = .48$). The main effect for source was also not significant, $F(1, 23) = 1.60, p = .22, \eta^2 = .07$, but the pattern suggested that the message delivered by the female source ($M = .19, SD = .89$) yielded more positive change than the message delivered

by the male source ($M = -.28, SD = .80$). The interaction between message type and source characteristics was also not significant, $F(1, 23) = .55, p = .46, \eta^2 = .02$. However, similar to Study 1, the means for the four conditions revealed that the affective message delivered by the female source ($M = .39, SD = 1.11$) resulted in the most positive change in attitudes followed by the cognitive message delivered by the female source ($M = -.07, SD = .42$). The cognitive message delivered by the male source ($M = -.25, SD = .58$) and the affective message delivered by the male source ($M = -.30, SD = 1.0$) both resulted in negative change (see Figure 2).

To assess whether specific attitudinal components (i.e., affective and cognitive) varied by condition, a between subjects ANOVA was conducted using the condom use attitudes measure (Hood & Shook, under review) which included both an affective and a cognitive component. The findings revealed that there was neither a significant main effect for message type, $F(1, 23) = .25, p = .62, \eta^2 = .01$, nor for message source, $F(1, 23) = .11, p = .74, \eta^2 = .01$, for the affective component of attitudes. The interaction between message type and source characteristics was also not significant, $F(1, 23) = .44, p = .51, \eta^2 = .02$.

Results for the cognitive component also revealed that there were no significant differences between conditions for message type, $F(1, 23) = .03, p = .88, \eta^2 = .006$, or for source characteristics, $F(1, 23) = 1.41, p = .25, \eta^2 = .06$. The complete Condom Use Attitude scale was also used to determine whether posttest attitudes differed between conditions. Although the results were not significant, the pattern of the results was similar to the pattern presented with the attitude change variable. The affective message delivered by the female source ($M = 6.21, SD = .77$) resulted in more favorable attitudes about using condoms followed by the cognitive message delivered by the female source ($M = 6.12, SD = .69$) and the cognitive message delivered by the male source ($M = 5.81, SD = 1.14$). Although still generally positive, the affective message delivered by the male

source ($M = 5.44$, $SD = 1.31$) resulted in the least favorable attitudes regarding condom use in relation to the other conditions (see Table 4 for a complete list of means).

Finally, a logistic regression analysis was conducted to see if intentions varied by condition. Using the dichotomous intent to use condoms the next time one has sex question, message type and source did not significantly influence intentions, $X^2(2, N= 27) = 1.69$, $p = .43$. The second intention measure (“I plan to use condoms the next time I have sex”) was dropped from Study 2 to allow more time for the focus group discussions.

Table 4

Descriptive Statistics for Study 2

Variable	<i>N</i>	<i>M</i>	<i>SD</i>	<i>SE</i>
ATCU (Difference Score)	26	0.03	0.88	0.17
Female/Affect	7	0.39	1.11	
Female/Cognitive	8	-0.07	0.42	
Male/Affect	6	-0.30	1.00	
Male/Cognitive	5	-0.25	0.58	
CUA Complete	26	5.90	0.96	0.18
Female/Affect	7	6.21	0.77	
Female/Cognitive	8	6.12	0.69	
Male/Affect	6	5.44	1.31	
Male/Cognitive	5	5.81	1.14	
CUA Affect	26	5.17	2.59	0.49
Female/Affect	7	5.78	1.44	
Female/Cognitive	8	5.60	2.64	
Male/Affect	6	4.36	3.61	
Male/Cognitive	5	4.90	2.77	
CUA Cognition	26	6.64	1.21	0.23
Female/Affect	7	6.63	1.13	
Female/Cognitive	8	6.46	1.32	
Male/Affect	6	6.51	1.13	
Male/Cognitive	5	6.83	1.46	
Intent to use condom at next sexual intercourse	24	1.33	0.48	0.10
Female/Affect	7	1.29	0.49	
Female/Cognitive	7	1.57	0.53	
Male/Affect	5	1.40	0.55	
Male/Cognitive	5	1.00	0.00	

Note. ATCU = Attitude toward Condom Use Scale, CUA= Condom Use Attitude Scale

Figure 2

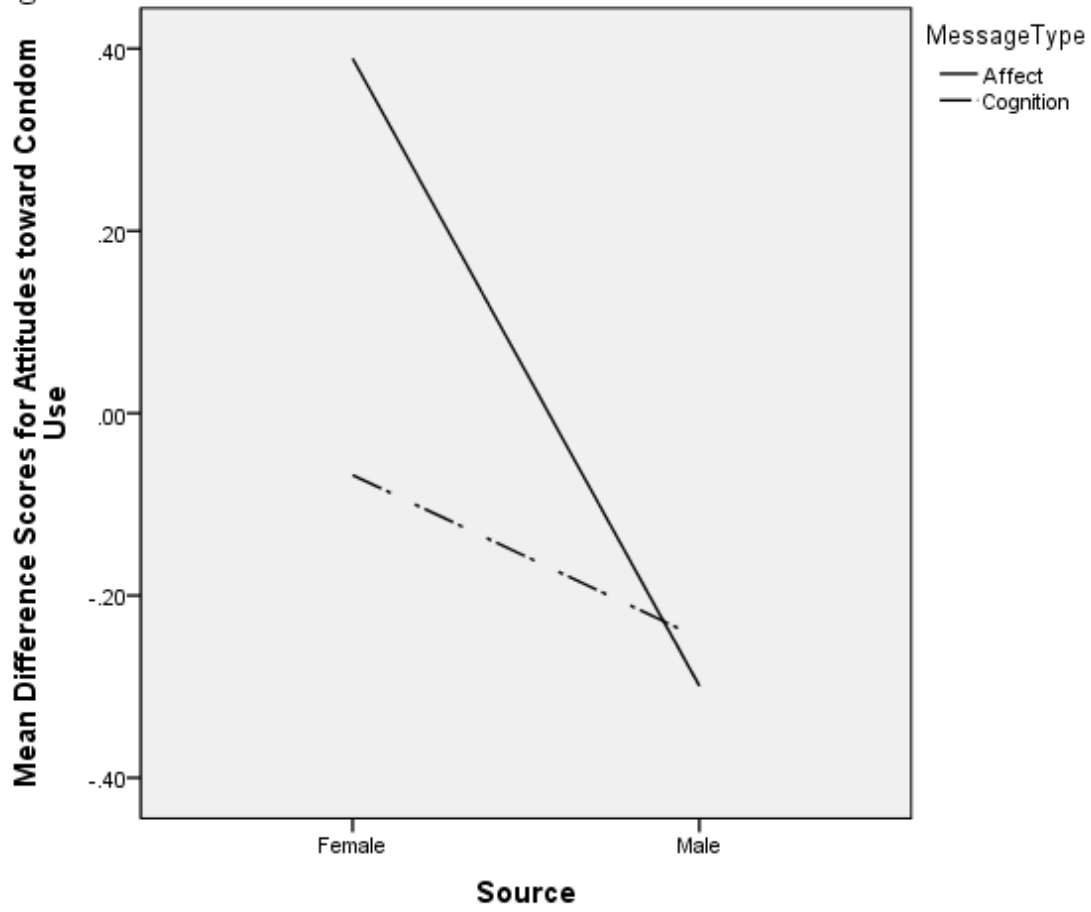


Figure 2. Condom use attitude difference scores as a function of message type and source characteristics (Study 2).

Themes from focus groups

The purpose of the focus group discussions was to better understand the types of condom use messages African American women find effective. Several themes relating to condom use and HIV prevention messages emerged from the focus group discussion. The themes included: condom use as a means of pregnancy prevention; negative attitudes toward using condoms; communicating messages through social media, TV, and radio; making messages that are fun, catchy, and informative; using celebrities and peers to deliver messages; and increasing the frequency of messages to match the importance of topic. Each theme will be described below along with exemplar quotes from the focus group discussions.

Primary function of condom use is pregnancy prevention and secondary function is STI prevention during casual sex

Women in the focus groups believed that condoms are still associated with pregnancy prevention more than STI prevention. Participants spoke about condoms as a means of birth control and felt that the primary function of condoms was to prevent pregnancy. Even when specifically asked to discuss condom use as a preventative strategy for HIV prevention, the conversation would inevitably turn back to preventing pregnancy.

- *Advantages of using condoms obviously would be preventing pregnancy. If you have casual sex then STDs and HIV prevention (Focus Group 3)*
- *The advantage is you don't end up with kids, you... (Focus Group 5)*

In general, the women in the focus groups perceived themselves to be at low risk for contracting HIV. Many felt that having unprotected sex with one partner at a time would not put them at risk for contracting HIV. Some expressed concern of infidelity from their sexual partner and many women reported that they had not discussed their partner's sexual history prior to having unprotected sex. Women who perceived themselves to have some level of risk were very

knowledgeable about HIV. Many tried to convince others in the focus group of the importance of using condoms even while in committed relationships. The majority of the women who perceived themselves to be at some level of risk ($n = 5$) self-disclosed stories of contracting a curable STI while in a committed relationship or knew someone who was HIV sero-positive.

Negative attitudes toward condom use

The majority of the women in the focus groups reported that most people, especially men, have negative attitudes toward using condoms. When prompted to explain why they believed people had negative attitudes toward using condoms, three common subthemes emerged: negativity toward condoms due to reduced pleasure and comfort, negativity toward condoms due to lack of reliability (breakage), and negativity towards condoms because it symbolizes a barrier within the relationship. In the discussions, women readily listed common complaints about condoms and the reason why some people do not wear them consistently. Many reasons for not using condoms were due to reduction in pleasure and lack of comfort for one or both parties.

- *Guys say they don't use them for pleasure they say it doesn't feel as good when they are having intercourse (Focus Group 7)*
- *I've heard people say that they're allergic to it and that they are uncomfortable (Focus Group 4)*
- *I think that people don't want to use condoms because they're uncomfortable and um, that's what I hear the most. Like, people don't want to use condoms because they don't feel the same.(Focus Group 2)*

Another reason some of the women cited for not using condoms was that they are not reliable. Several spoke about not wanting to use condoms for fear of breakage, leaving them exposed to pregnancy and STIs.

- *Condoms don't protect 100% really, you know fully protect you from every type of disease. (Focus Group 5)*

- *You have to be careful with condoms. They break during sex and if you are not on the pill then you can end up with a baby (Focus Group 3)*

Finally, women spoke about negative attitudes toward condom use within the context of relationships. The women spoke particularly about the ways in which men pressure women into not using condoms. Women reported that within the relationship not using a condom is a symbol of trust and commitment. Several women reported that men will not perceive the relationship as serious as long as condoms are used.

- *Men use condoms with their side piece, not with their girlfriend (Focus Group 3)*
- *Some people feel like not being able to have that complete closeness with their partner because of the condom. It's about commitment and trust. The condom is a barrier to the relationship. Not using a condom is showing your partner you love them, trust them and you are committed to them (Focus Group 1)*

Communicating messages through social media, TV, and radio

Several women reported that the best way to reach African American women between the ages of 18-30 is through social media (i.e., Facebook and Twitter) and television stations and shows that cater to a young Black audience (i.e., BET). Additionally, both traditional radio stations and internet radio (i.e., Pandora) were also listed as excellent sources. A number of women spoke about putting messages in places/activities where young women spend the most time. Internet radio, internet TV/YouTube, and social media were the three most popular suggested sites for communicating messages.

- *You know MTV, BET, Hulu internet TV would be good places for messages (Focus Group 1)*
- *I think Facebook and YouTube would be good places. Everybody is on Facebook and YouTube. (Focus Group 4)*
- *Most women I know love music. I listen to the radio in the car and Pandora. Those would be good places because you can't escape the advertisements (laughter)(Focus Group 7)*

Although women in the focus groups mentioned that social media and other internet sites would be great places to target women between the ages of 18-30, they also thought it would be a good way to reach younger people as well. All focus group participants felt that the messages should be targeted to younger people. There was a consensus among group members that people are engaging in sexual activities at younger ages and are engaging in these activities without knowing the risk. They felt that young people lack the knowledge to make appropriate decisions about sex and are getting their information from videos and misinformed peers. A number spoke about the importance of schools and the family as sources of information for younger women and the need for proper sex education in the schools as well as information to help parents give their children the “sex talk”.

- *I remember my mom coming to me and saying, 'Janica¹, what do you know about sex?' and me saying 'Um, enough' and her going 'oh okay.' That was my sex talk. That was my entire sex talk. It was ridiculous. I'm like that's it, okay. Whatever. (Focus Group 6)*
- *My sex talk was “Don't do it. If you get pregnant, I will kill you” (Focus Group 1)*
- *Sex education is important. Women need more education. I learned more about a lot about sex in a course in college...after I had sexually active for 5 years. Women need to learn this stuff sooner. Before they catch something (Focus Group 3)*

Messages should be fun, catchy yet informative

Members of the focus groups expressed the need for effective messaging to evoke positive emotions. Many reported that messages that were sad, unpleasant, or threatening were not remembered. Although many reported that HIV is not a funny subject, they thought that making messages about using condoms funny and catchy would make them more memorable and effective.

¹ Participants chose pseudonyms to be referred to during the focus group discussions. Pseudonyms were used in reporting the results

Others stated that the messages should be accompanied with a jingle. Women had discussions about their favorite commercials and recounted that the advertisements with songs were the ones most easily recalled.

- *You should put it in a tone where people can think about it and not get really depressed about it. Or not be super freaked out already by the decisions they've made in the past that led them up to here. It should be comfortable like the tampon commercials during football [cross talk] like during the Super Bowl. It's like you're watching TV with a dude and you know "Oh, my period's so heavy." (group laughter) It's not comfortable for them but they deal with it you know. Condom commercials should be like "Use a condom" commercial. Just simple things. (Focus Group 3)*
- *We see influential commercials out there all the time. They make us laugh, they're kind of funny...But either way it stays, exactly, it stays in your mind and that's what we probably just need to put more commercials and information out there about using condoms. Messages that say it's okay to wrap it up. You know, make a song about it. "Jimmy cap before you tap" (group laughter) You know, something silly. [cross talk] You think about it, it stays in your mind, and it's funny, but then right when you're about to hook up with somebody you're like "Jimmy cap before you tap" (Focus Group 5)*

Along with being fun and catchy, participants thought that messages should be informative. A few recounted that each message should include one short fact about HIV and a reference to where one can find more information. Others reported that longer messages should be personalized to keep the audiences' attention.

- *Documentaries and personal stories. Hearing the stories of people who are infected affect me. That grabs my attention and stays with me (Focus Group 2)*

Increase the frequency of HIV prevention messages

A number of women had a hard time recalling the last condom related message they had seen. Many remembered seeing messages around World AIDS Day but nothing any other time of the year. A few included that they assumed that HIV and AIDS was not a problem since there was not a lot of time spent on messages. Quite a few women stated that the number of messages would

have to increase and be constant in order for them to be effective. The women had varied exposure to messages but similarly felt that increased exposure to messages of any kind would increase awareness that HIV is still an issue.

- *It's not that the messages aren't like interesting or anything but you don't see it enough. They should be more frequent not just around World AIDS day. (Focus Group 6)*
- *Usually, I know, there's an AIDS awareness month or something like that. I usually see the red ribbons and stuff during around that time but most of the time I don't see it that often, you know what I'm saying (Focus Group 7)*

Celebrities and peers to deliver messages

The last theme to emerge from the focus group discussions was the use of celebrities and peers as message sources. Over half of the participants felt that celebrities would be effective sources of prevention messages. Participants felt that people would be more likely to pay attention to the message if it were coming from someone they admired and would be more likely to emulate the behaviors of their role models. Focus group participants also felt that peers would be a good source to deliver messages because they make the message more “real”. Having a peer speak from personal experience about the importance of condom use breaks the shield of invincibility forcing women to acknowledge that contracting a STI could happen to them.

- *I think her (female source in video) just speaking from a woman's point of view and a black woman at that I think it was credible enough on its own because we all agree with it so that's credibility. (Focus Group 2)*
- *I think bringing celebrities and people that younger women look up to will make them pay more attention versus just thinking it's a commercial. And also, people their age, that they can relate to saying that “use a condom”(Focus Group 5)*
- *Somebody who you could say is hip or somebody, who's popular in the young community or like actors and rappers, stuff like that. I know 'cause when the whole voting happened with Obama and P Diddy came out and vote for Obama, like everybody did. If you listen to them, that's the best way to do that. Get some celebrities. (Focus Group 4)*

Conclusion

The specific aim of Study 2 was to examine whether college and community women were influenced by similar message characteristics when changing their attitudes towards condom use. Both quantitative and qualitative methods were used in this study. Similar to Study 1, Study 2 investigated whether matching a persuasive communication to the base of an attitude would yield more change in attitudes than a communication that did not match the base of the attitude. Additionally, Study 2 also examined whether the source of the communication would independently influence post communication attitude change. Last, themes from focus group discussions were generated to determine the characteristics of HIV prevention messages African American women believed were most influential.

The quantitative findings from Study 2 did not reach statistically significant levels to support the primary hypotheses. This is likely due to the small sample size of less than eight women per condition. However, the pattern of means was consistent with the direction of the hypotheses. Specifically, the affective message resulted in more positive change in pre-to-post condom use attitudes than the cognitive message. The message delivered by the female source promoted more positive change than the message delivered by the male source. The affective message delivered by the female yielded the most positive change in attitudes. This pattern was also seen with the Condom Use Attitudes scale. Participants in the affective/female condition reported more favorable attitudes toward using condoms than participants in the other three conditions. Due to the exploratory nature of Study 2, the sample size was very small. With a larger sample, the differences in attitudes per condition using both attitude outcome measures may have been varied enough to detect statistically significant differences.

Condom use intentions were also assessed to see if intentions to use condoms would vary based on condition. Similar to the attitude findings, there were no significant differences in intent to use a condom the next time one has sex between conditions. Again, though, changes in condom use intentions were not expected as the videos were specifically designed to change condom use attitudes.

Focus group discussions were analyzed to better understand what types of condom use messages African American women find effective. Several themes emerged from the focus group discussions relating to condom use and HIV prevention messages. The first theme, condom use as a means of pregnancy prevention, revealed that some women still associated condoms as a method of birth control rather than for HIV and STI prevention. The second theme, negative attitudes toward using condoms, consisted of three subthemes: negativity due to reduced pleasure, negativity due to lack of reliability, and negativity in the context of relational trust and commitment. Women felt like condoms are not comfortable and reduce pleasure during intercourse. Additionally, participants questioned the reliability of condoms, stating that they often break during intercourse. Last, condom use was seen as a symbolic barrier for trust and commitment. Women felt that negative attitudes prevented some people from using condoms consistently.

Other themes that emerged from the discussions included: communicating messages through social media, TV, and radio; making messages that are fun, catchy, and informative; using celebrities and peers to deliver messages; and increasing the frequency of messages to match the importance of topic. Many focus group participants stated that frequent messages on television, radio, and posted on social media and other internet sites would be the best way to reach African American women between the ages of 18 and 30. The women stated that the frequency of the messages is equivalent to level of importance. Messages that are shown frequently are perceived as

more important. The women also reported that fun, catchy messages accompanied with a jingle are more memorable than sad or threatening messages. And finally, messages delivered by a peer or a well-known celebrity were seen as more personally relevant and likely to be effective. Thus, positive yet informative messages that are delivered frequently by celebrities or peers would be most effective for young African American women.

Although the results were not significant, Study 2 suggested that community African American women may have found the affective message delivered by the female source to be the most persuasive, yielding the most positive change in condom use attitudes. These preliminary results were consistent with Study 1 such that the affective message and the female source were more persuasive in changing attitudes toward condom use. These results suggest that college and community African American women may be persuaded by similar message characteristics. In conclusion, the affective message delivered by the female source was the most persuasive of the four messages. This message was used in the pilot intervention to determine whether a targeted persuasive communication would lead to positive lasting change in attitudes toward using condoms.

Study 3

The purpose of this study was to examine the effectiveness of a pilot intervention in changing African American women's attitudes towards condom use. This study also examined whether the change in condom use attitudes persisted after 3-months and whether the intervention influenced intentions. A single-session, 2-hour persuasive message intervention was designed based on the affective message delivered by the female source. This message was chosen because it yielded the most positive attitude change in Studies 1 and 2. The intervention involved a peer-led, small group session that included a guided discussion using culturally congruent HIV prevention materials. The sessions were conducted in small groups of 3 to 12 women.

The intervention session, which included the persuasive video, was compared with an information only control, which included the same HIV prevention material delivered by a peer facilitator and peer-led discussion. The only difference between sessions was that the control group did not view the persuasive video. Group comparisons were made to determine whether the affective message delivered by the female source increased positive attitudes toward using condoms and promoted stable attitude change over and above HIV information only.

The study used a 2 (intervention vs. information only control) X 3 (pretest, posttest, follow-up) mixed factorial design. The between-participants variable was condition which refers to the intervention group (persuasive message plus HIV information) or information only group. The within-participants variable was the time in which questionnaires were administered: baseline (pretest), posttest, or three month follow-up. Groups were randomly assigned to the intervention or the control condition.

Hypotheses

Hypothesis 1: Participants in the intervention condition would exhibit more positive condom attitude change than the information only condition. Persuasive messages designed to change attitudes have been found to promote more attitude change than information alone messages (Trafimow, 2004). Further, messages designed to match the base of the existing attitude (affective vs. cognitive) are more likely to change the attitude than messages based on a different attitudinal component. Thus, it was predicted that the intervention condition with the affective message delivered by the female source would be more effective in changing attitudes towards using condoms than the information only condition.

Hypothesis 2: Participants in the intervention condition would exhibit more stable positive attitude change at three month follow-up than participants in the information only condition. Previous research has indicated that if a persuasive communication matches the component that the attitude is heavily based upon, it is more likely to change the original attitude (Edwards, 1990; Edwards & von Hippel, 1995; Huskinson & Haddock, 2004). Additionally, when the attitude and persuasive communication match, attitude change is persistent over time (Olson & Fazio, 2001). Based on this research, it was predicted that participants in the intervention condition would exhibit more positive change in condom use attitudes over time than participants in the control condition.

Methods

Participants

A total of 115 African American women from the Richmond community participated in study sessions. There were three data collection points over two sessions: pretest, posttest, and follow-up. Pretest and posttest assessments were collected in the first session and follow-up was

collected in the second session. Women participated in small groups of 3-12. There were a total of 25 groups. The mean age was 24.73 ($SD = 3.71$). Most of the women were sexually active (75%), and 73 participants (66%) reported having a romantic partner. Approximately half (51%) reported having children, and 61 participants (55%) reported being in a committed relationship. A little less than half (42%) reported having a STI in their lifetime, and 87% of the women had been tested for HIV. Sixty-five percent of the women planned to use a condom the next time they had sex. Two participants were excluded from the analyses because they were not available for follow-up. Therefore, a total of 113 participants were included in the analyses. The G-Power software package (Buchner, Erdfelder, & Faul, 1997) was used to calculate power when conducting a 2 X 3 mixed factorial ANOVA design. The calculations based on the G-Power software suggested that estimated power for a sample of 113 is .999 at an alpha of .05.

Inclusion Criteria: In order to participate in the study, women had to identify as heterosexual and African American. In order to differentiate between the persuasive messages, a certain level of understanding of the English fluency is required. The target age range for women participating in the study was between the ages of 18 – 30. However, two women over the age of 30 (31 and 32) were included in analyses. African American women who were currently full-time students at a college or university were not eligible to participate. Ten participants were part-time students and attended vocational/trade schools such as cosmetology.

Recruitment

Potential participants were recruited from local community based organizations that have collaborated with the Center for Cultural Experiences in Prevention in previous prevention efforts. These organizations included Capital Area Health Network, Richmond Behavioral Health Authority, Creighton Court Resource Center, and FanFree clinic. Flyers were posted at the

community organizations and staff members at these organizations distributed flyers to African American women. The flyers included information such as a description of the study, the length of the study, the amount of participant compensation, and contact information. Interested individuals called or e-mailed to sign-up for intervention sessions. An announcement was also posted on Craigslist with a phone number and email address for interested participants to call/e-mail regarding study sessions. During initial contact, the researcher or trained research assistants asked potential participants their age, race/ethnicity, and student status. Eligible individuals were then scheduled during available session times. Contact information (e.g., phone number or e-mail) was taken to send out reminders.

Participants were offered monetary incentives (\$20), food (e.g., pizza, chips, and fruit), and minor transportation compensation (e.g., money for parking or bus tickets) for participating in these sessions. The women were also provided monetary compensation (\$25) for participating in the follow-up session. The first session lasted approximately 1.5 hours and the second lasted 30 minutes. A total of fifty-five women were recruited from Craigslist and fifty-eight were recruited through community partners. The community partner from which the vast majority of participants were recruited from was Creighton Resource Center.

Study setting

The study was conducted at two primary locations: the Center for Cultural Experiences in Prevention at VCU and the Resource Center at Creighton Court. Sessions were held in a conference room at both facilities. The Center for Cultural Experiences in Prevention is located on the campus of Virginia Commonwealth University in the heart of Richmond, VA and is easily accessible to members of the surrounding community with street parking available as well as a bus stop a block

away. The fifty-five women who were recruited from Craigslist participated in the sessions at this location. These fifty-five women comprised 15 groups.

The second primary location was the Creighton Court Resource Center, which is located in the heart of the Creighton Court neighborhood and easily accessible to all that reside within the community. There is also a bus stop right out front of the Resource Center as well as plenty of free parking. Creighton Court is one of the public housing communities in Richmond, VA. Sessions were held in a conference room at the Resource Center. A total of fifty-one women participated at this location comprising 9 groups

The remaining seven women participated at the Social Services Building in downtown Richmond, VA. Women from the Richmond Healthy Families program came across the Craigslist posting during one of their program meetings. The session leader called and arranged for the session to be held in the conference room of their organization. The conference room was similar to that of the Center for Cultural Experiences in Prevention. Richmond Healthy Families provided transportation for these women.

Procedure

Groups were randomly assigned to either the information only condition or the intervention condition. The first group was randomly assigned as the intervention group using a random number table and group assignment was alternated between intervention and control thereafter. There were 62 participants in the control condition and 51 in the intervention condition. After screening/consent, participants completed pretest measures of condom attitudes and potential covariates (e.g., Need for Affect, Need for Cognition) described previously. The 1.5-hour session included HIV prevention information delivered via a PowerPoint presentation, a group discussion, and a take home exercise. The PowerPoint presentation included basic knowledge about HIV and

HIV testing. The presentation covered the following topics: definition of HIV and AIDS, the modes of transmission, the fluids that transmit HIV, the four stages of HIV, and basic information about HIV testing. In the intervention condition, participants watched the affective message delivered by the female source from Studies 1 and 2 in addition to the activities detailed above. The video was presented prior to the HIV information PowerPoint and the group discussion. The PowerPoint presentation and video (if applicable) were shown to the group on a flat screen television.² At the end of each session, participants completed a posttest packet assessing their condom attitudes, use intentions, perception of risk for STIs, condom related behaviors, a demographics measure, and contact information for follow-up. Three months after the intervention, participants completed a follow-up packet assessing their attitudes toward condom use, perception of STI risk, condom use intentions, and behaviors.

Retention

At pretest, participants were asked to provide permission for the researcher to keep in contact for the three month follow-up session. Women were asked to provide their contact information on a form that was separate from the questionnaires. The form was distributed, completed by the participant, and collected before assessments were handed out. Women were asked to provide their names, home phone number, cell phone number, mailing address, and email addresses. The contact information was stored in a secured and locked cabinet in the researcher's office. At the end of each session, participants were given a business card with the time, date, and location of the follow-up session. The front of the business card had the researcher's contact information.

² The television used in the community partners group was a 25in screen and the Craigslist group was a 32in screen.

Each time the women were contacted, they were asked if there were any changes in their contact information and if they were able to make the scheduled follow-up session. Participants were contacted once via e-mail two weeks after the first session thanking them for participating and letting them know that they would be contacted again about follow-up. Four weeks prior to the follow-up date, participants were contacted by phone or e-mail to confirm availability for the follow-up session.

Two weeks prior to the follow-up, each participant was called to confirm or reschedule follow-up sessions. For those who did not respond to phone calls, e-mails were sent out to confirm attendance. In the two weeks prior to follow-up, participants who did not respond to previous contact attempts were contacted every three days by phone or email until they were reached. If contact was not made after three attempts via phone call or e-mail, postcards were sent to their mailing address in an attempt to reach participants. One hundred and thirteen out of the 115 who were eligible for follow-up (98% retention rate) were successfully contacted and completed follow-up. Two participants did not respond to any attempts to schedule the follow-up session.

Measures

Condom use attitudes, intentions, and behavioral measures used in Study 1 and 2 were used in Study 3. Additional measures are discussed below. The attitudes toward condom use semantic differential scale, condom use attitude measure, need for affect, need for cognition, perceived risk for STDs, and sexual history measures were administered at pretest. All other measures including the attitudes toward condom use semantic differential scale were administered at posttest. At follow-up, the attitudes toward condom use semantic differential scale, condom use attitude measure, condom use intentions, sexual history, perception of risk, and demographic form were administered.

Perceived Risk for STDs. This measure assessed the extent to which participants perceived their sexual activity as having the potential for adverse consequences (Erickson, 1989).

Participants were presented with hypothetical scenarios involving risky behavior (e.g., Would you use condoms with someone who you love, even though he or she has had many sexual partners?).

Response options are on a 7-point scale, from “no risk” (1) to “extreme risk” (7). Higher scores indicated more risk or consequence. The reliability of this measure was .85 with the study sample.

Perception of risk was included as a potential covariate.

Sexual Behavior History & Demographics. Participants were asked their age, relationship status, whether they had children, ethnicity, whether they self-identified as gay, bisexual, or heterosexual, and whether they were sexually active. These variables were used as potential covariates.

Social Desirability Scale (Crowne & Marlowe, 1960). The social desirability scale was used to assess the tendency of respondents to report attitudes and behaviors in a manner that are viewed favorably by others. This 33 item scale includes items like “I never resent being asked to return a favor”. Due to the fact that some of the questions were sensitive and personal in nature, this scale was included to determine whether this tendency influenced attitudinal or behavioral responses. The reliability of this measure was .88.

Results

Descriptive Statistics

Descriptive statistics for the primary variables of interest are presented in Table 5. Before proceeding with tests of the study’s main hypotheses, it was necessary to ensure that the data met all assumptions of normality, linearity, homogeneity of variance, and sphericity. Pretest (Skewness = -2.05 SE= .23, Kurtosis = 4.50 SE =.45), Posttest (Skewness = -2.82 SE = .23, Kurtosis = 9.14 SE =

.45), and Follow-Up (Skewness = -2.70 $SE = .23$, Kurtosis = 8.96 $SE = .46$) attitudes toward using condoms were negatively skewed and kurtotic. In order to correct for this, a reflect inverse transformation was performed on the pretest, posttest, and follow-up attitude variables. Following transformations, the new variables demonstrated improved fit statistics (Skewness = .005 $SE = .23$, Kurtosis = -1.35 $SE = .45$, Skewness = -.35 $SE = .23$, Kurtosis = -1.37 $SE = .45$, and Skewness = .25 $SE = .23$, Kurtosis = -1.13 $SE = .46$, respectively), so subsequent analyses were conducted using the transformed variables.

Correlational analyses were conducted to see if there were any potential covariates (see Table 6). Research has suggested that relationship variables such as status, length, and current sexual activity can influence attitudes toward using condoms. In addition, the persuasiveness of a message can be influenced by individual differences in preference for dealing with emotions and cognitive thought (Cacioppo & Petty, 1982; Maio & Esses, 2001). The results of the correlational analyses revealed that romantic partner status was associated with attitudes and intentions. Romantic partner status also differed by condition, $t(109) = 2.51, p < .02$. Those who did not have a romantic partner had more positive attitudes toward using condoms than those with a romantic partner. None of the other potential covariates differed by condition. Therefore, romantic partner status was included in the final analyses as a covariate.

Participants in the current study were recruited in two primary ways: Craigslist and community partners. Although many Americans have unlimited access to the internet at home and through their mobile phones, there are still subsets of the populations that do not have the resources to regularly use the internet. Participants from Craigslist most likely had unlimited or regular internet access. This might not have been the case among women from Creighton Court. In addition, the popularity of some websites may vary; consequently, women who were recruited from

Craigslist might differ from those who were recruited through the community partners. Thus, recruitment type was examined as a potential covariate to determine whether there were differences in the sample based on the recruitment venue. The results showed that recruitment type was associated with attitudes and intentions. Those who were recruited from community partners reported more positive attitudes, $t(111) = 3.75, p < .001$, and higher intentions to use condoms, $X^2(1, N= 111) = 10.22, p = .001$, than those recruited through Craigslist³. Due to the potential implications that could result from recruiting differences in attitude change, recruitment type was included as an independent variable in the final analyses.⁴

³ Participants recruited through community partners had more children and were slightly older than the Craigslist group.

⁴ The power analysis was re-computed for a 2 X 2 X 3 mixed methods ANOVA for a sample of 113. The estimated power for this study remained .999

Table 5

Descriptive Statistics for Study 3

Variable	<i>N</i>	<i>M</i>	<i>SD</i>	<i>SE</i>
ATCU Pretest	106	-0.07	0.99	0.09
ATCU Posttest	106	0.06	0.97	0.09
ATCU Follow-up	106	0.04	0.98	0.10
CUA Complete Follow-up	108	3.35	1.22	0.12
CUA Affect Follow-up	108	4.66	1.09	0.11
CUA Cognition Follow-up	108	3.87	1.00	0.10
How old are you?	113	24.73	3.71	0.35
Need for Affect	113	3.52	0.56	0.05
Need for Cognition	113	3.32	0.56	0.05
Do you currently have a romantic partner?	111	1.34	0.48	0.05
Are you currently married?	112	1.92	0.27	0.03
How long have you and partner/spouse been together? (In months)	79	43.22	47.81	5.38
How would you describe your current relationship status?	111	1.11	0.83	0.27
Are you currently sexually active?	112	1.25	0.44	0.04
Have you ever had a sexually transmitted disease or infection?	112	1.58	0.50	0.05
In your lifetime, have you ever been tested for HIV?	107	1.08	0.28	0.03
The next time you have sex do you plan to use a condom?	106	1.31	0.47	0.05
Plan to use a condom the next time you have sex	112	4.32	3.13	0.29

Table 6

Study 3 Correlations

<i>Variable</i>	CUA	CUA Affect	CUA Cognition	ATCU Pretest	ATCU Posttest	ATCU Follow- up
Age	0.08	0.13	-0.05	0.1	0.04	0.03
Romantic partner	0.18*	0.24**	0.04	0.22**	0.19*	0.05
Sexually active	0.03	0.03	0.02	0.01	0.11	0.07
Ever had STI	0.02	0.05	-0.06	0.17	-0.06	0.02
Relationship status	0.06	0.02	0.11	0.07	0.16	-0.01
Relationship length	0.03	0.02	0.04	0.02	0.12	-0.07
NFA	0.09	0.07	0.11	0.16	0.07	0.1
NCS	0.01	-0.01	0.04	-0.03	0.02	0.06

Note. $N = 113$; CUA= Condom Use Attitudes Scale, ATCU= Attitudes toward Condom Use Scale, NFA= Need for Affect Scale, NCS= Need for Cognition Scale

* $p < .05$, ** $p < .01$

Tests of Main Hypotheses

The main purpose of the current study was to test whether a pilot intervention that included a persuasive communication would result in more positive change in attitudes toward condom use than HIV information alone. The primary dependent measure was attitudes assessed at three different time points: pre-intervention, post-intervention, and 3 month follow-up using the semantic differential attitude scale. Prior to conducting analyses, pretest, posttest, and follow-up attitudes were standardized following the previously mentioned transformations.

A mixed factorial analysis of covariance (ANCOVA) was conducted to examine both main and interactive effects of condition and recruitment type on condom use attitude at three different time points after controlling for romantic partner status. The design was a 2 X 2 X 3 mixed between-within design, with four conditions (Control/Craigslist, Control/Community Partner, Intervention/Craigslist, and Intervention/Community Partner). Results revealed no significant main

effect of time, Wilk's Lambda = .96, $F(2, 100) = 2.22$, $p = .11$, $\eta^2 = .04$. That is, there was not a significant change in condom use attitude scores across the three time points. There was a significant between-subjects main effect for recruitment type, $F(1, 101) = 10.85$, $p = .001$, $\eta^2 = .10$, such that those recruited via the community partners ($M = .20$, $SD = 1.08$) had significantly more positive attitudes than those recruited from Craigslist ($M = -.06$, $SD = .89$).

There was a two-way interaction between time and romantic partner status, Wilk's Lambda = .94, $F(2, 100) = 3.26$, $p = .04$, $\eta^2 = .06$. A test of simple effects showed that attitudes toward condom use significantly increased from pretest ($M = -.01$, $SD = .92$) to posttest ($M = .28$, $SD = .93$) for those who did not have a romantic partner Wilk's Lambda = .95, $F(2, 103) = 2.85$, $p = .05$. There were no differences between pretest and follow-up or posttest and follow-up. Condom use attitudes did not change across any time points for those with a romantic partner. The interactive effect of time and condition was not significant, Wilk's Lambda = .99, $F(2, 100) = .61$, $p = .55$, $\eta^2 = .01$. There was also not a significant interaction for time and recruitment type, Wilk's Lambda = .96, $F(2, 100) = 2.38$, $p = .10$, $\eta^2 = .05$.

There was a significant three-way interaction between recruitment type, condition, and time, Wilk's Lambda = .92, $F(2, 100) = 4.21$, $p = .02$, $\eta^2 = .08$ (see Figure 3a and b). A test of simple effects revealed that for those who were recruited from Craigslist and in the control condition, there was a significant positive shift in attitudes from pretest ($M = -.37$, $SD = .93$) to posttest ($M = .04$, $SD = .95$), Wilk's Lambda = .88, $F(2, 58) = 4.06$, $p = .02$. This shift was not significant for the intervention group recruited from Craigslist, Wilk's Lambda = .94, $F(2, 58) = 1.75$, $p = .18$. There was a marginally significant positive change in attitudes toward using condoms from pretest ($M = -.37$, $SD = .93$) to follow-up ($M = -.09$, $SD = .83$) in the control group and from pretest ($M = -.35$, $SD = .86$) to follow-up ($M = -.02$, $SD = .97$) in the intervention group for those who were recruited by

Craigslist, $ps = .06$ for both groups. For the community partner group, there were no significant changes in attitudes between time points for either the control group or the intervention group, $ps > .20$.

In order to assess whether the attitudinal components of condom use attitudes differed by condition and recruitment type, a between subjects ANOVA was conducted using the subscales of the Condom Use Attitudes scale. The affective and cognitive components of attitudes were assessed at follow-up to determine whether the components varied based on whether participants viewed the affective-based persuasive video or not. For the affective component of the attitudes measure, the findings revealed that there was not a significant main effect for condition, $F(3, 104) = 1.14, p = .29, \eta^2 = .01$. There was a main effect for recruitment type, $F(3, 104) = 12.83, p = .001, \eta^2 = .11$. Those who were recruited from community partners ($M = 3.80, SD = 1.07$) reported more positive affect toward condom use than those who were recruited through Craigslist ($M = 3.02, SD = 1.22$). The interaction between condition and recruitment was also not significant, $F(3, 104) = 1.19, p = .28, \eta^2 = .01$.

Results for the cognitive component revealed that there were no significant differences between conditions, $F(3, 104) = 2.32, p = .13, \eta^2 = .02$. The main effect for recruitment type was also not significant, $F(3, 104) = .23, p = .63, \eta^2 = .002$. The interactive effect of condition and recruitment type was significant, $F(3, 104) = 4.24, p = .04, \eta^2 = .04$. Recruitment type mattered for those in the intervention condition such that community partner participants ($M = 5.12, SD = .95$) reported more favorable cognitions about using condoms at follow-up than the Craigslist participants ($M = 4.58, SD = .1.02$). This pattern did not emerge in the control condition.

The complete Condom Use Attitude scale (composite of the affective and cognitive components) was also used to determine whether attitudes measured at follow-up differed between

conditions. The findings indicated that there was not a significant main effect for condition, $F(3, 104) = 2.13, p = .15, \eta^2 = .02$. The main effect for recruitment type was significant, $F(3, 104) = 7.83, p = .006, \eta^2 = .07$. Those who were recruited from community partners ($M = 4.15, SD = .98$) reported more positive condom use attitudes than those who were recruited through Craigslist ($M = 3.67, SD = 1.19$) (see Table 7 for a complete list of means). The interaction between condition and recruitment was also not significant, $F(3, 104) = 1.19, p = .28, \eta^2 = .03$.

Intentions to use condoms the next time one has sex was also assessed to see if intentions varied by condition and recruitment type. A logistic regression analysis was conducted using the dichotomous intent to use condoms question. The overall model was significant, $X^2(2, N= 111) = 13.90, p = .001$, explaining between 11.8% (Cox and Snell R^2) and 16.3% (Nagelkerke R^2) of the variance, correctly classifying 65.8% of the cases. Recruitment type was a significant factor, $\exp(B) = .27, p = .004$, in influencing intentions. Those who were recruited through community partner reported higher intent to use condoms during their next sexual encounter. Condition was marginally significant, $\exp(B) = 2.25, p = .06$. The control condition was more likely to report intent to use condoms the next time they have sex. Intentions were also assessed using a rating scale item that asked participants whether they planned to use a condom the next time they had sex. Using a between subjects ANOVA, there were no significant differences for condition, $F(3, 100) = .07, p = .79$. The main effect for recruitment type was significant, $F(3, 100) = 7.52, p = .007$. Those who were recruited from community partners ($M = 4.15, SD = 2.45$) reported they were more likely to use a condom the next time they have sex than those who were recruited through Craigslist ($M = 3.39, SD = 2.29$). The interactive effect of condition and recruitment type was also not significant, $F(1, 100) = .02, p = .88$.

Table 7

Attitudes by Condition for Study 3

Attitude Variable	Recruited Via Community Partners						Recruited Via Craigslist					
	Control Group			Intervention Group			Control Group			Intervention Group		
	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>
ATCU Pretest	27	0.29	1.02	19	0.43	0.93	31	-0.37	0.93	31	-0.35	0.86
ATCU Posttest	27	-0.03	1.01	19	0.65	0.68	31	0.04	0.95	31	-0.24	0.98
ATCU Follow-up	27	0.19	1.07	19	0.27	1.10	31	-0.10	0.83	31	-0.02	0.97
CUA Complete Follow-up	27	3.90	0.96	19	4.50	0.92	31	3.69	0.70	31	3.65	1.19
CUA Affect Follow-up	27	3.59	0.96	19	4.09	1.17	31	3.03	1.05	31	3.02	1.40
CUA Cognition Follow-up	27	4.36	1.27	19	5.12	0.95	31	4.70	0.92	31	4.58	1.11

Note. ATCU = Attitudes toward Condom Use Scale, CUA = Condom Use Attitude Scale

Figure 3a

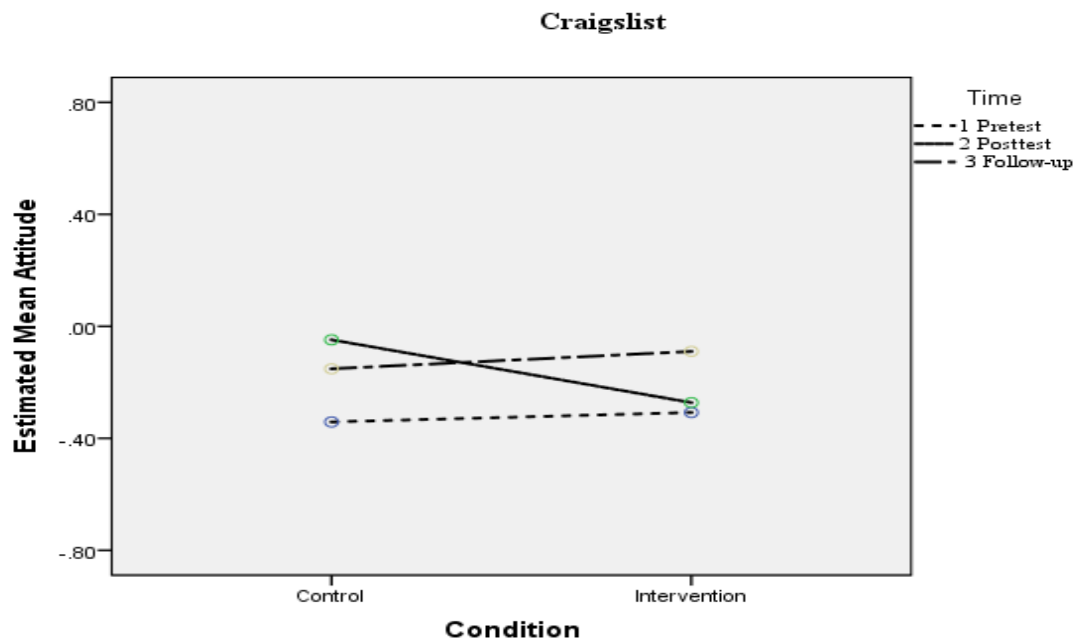


Figure 3b

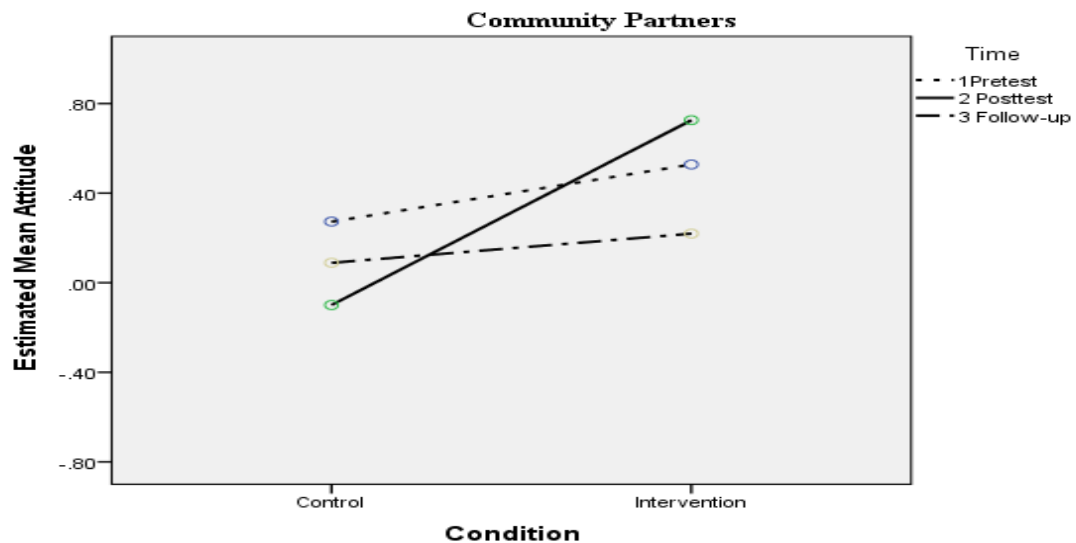


Figure 3 a & b. Time as a function of condition and recruitment type after controlling for romantic partner status (Study 3)

Conclusion

The goal of Study 3 was to examine the effectiveness of a pilot intervention in changing African American women's attitudes towards condom use and whether this change would be stable over a 3-month time period. There were no significant differences between the control group and the intervention group on a condom use semantic differential measure of attitudes at three different time points (pretest, posttest, and follow-up). Furthermore, there were no significant differences between conditions on the affective and cognitive components of condom use attitudes using the sub-scales and the composite scale. Thus, there was no evidence to support the study hypotheses.

Although the attitude scores assessed using the semantic differential scales were negatively skewed, the lack of an effect of the persuasive video was likely not due to lack of variability in the sample. Instead, the lack of an effect could be potentially due to differences in the study setting. In Studies 1 and 2, participants watched the persuasive video individually on a laptop. In Study 3, the video was played to a group on a larger television screen. The change in viewing method may have influenced how the message was received. In a group setting, there are more distractions and viewing in this manner could have decreased the personal connection that could have potentially been felt when viewing the message privately on a laptop with headphones. In addition, viewing the video on a larger screen could have highlighted some of the imperfections in the video recording which could also have been distracting. Additionally, the lack of an effect could also be due to the group discussions that took place as part of the intervention session. The group discussions occurred prior to women taking the posttest measure. The discussions may have been a type of contamination bias, which occurs when members of the control group inadvertently are exposed to the intervention, thus potentially minimizing the difference in outcomes between the two groups.

Positive discussions about using condoms are in themselves persuasive communications. The richness of the discussion (of lack thereof) could have further influenced women's attitudes attenuating the effects of the video. If participants in the control group had rich positive discussions about the benefits of using condoms consistently and correctly, that discussion could have increased their attitudes in the same way as the video in the intervention group.

Recruitment type was added as an independent variable because preliminary analyses revealed differences within the sample based on recruitment venue. The results showed that there was a main effect for recruitment type such that those who were recruited from a community partner had more positive attitude change than those recruited from Craigslist. Similar results were found with the condom use attitude measure using both the attitudinal components as well as the compiled measure. The pretest attitudes for the community partners were higher than the Craigslist participants, $t(111) = 3.75, p < .001$. This could be due to actual differences in the sample or it could potentially be due to differences in the recruiting location. The Creighton Court Resource Center is in a central location where many in the community meet their health care and financial needs. The Resource Center works with several partners in the Richmond area to provide dental care, nutrition and wellness advice, prenatal care and sexual health, as well as social service needs. Although the site was convenient, it may not have been a neutral enough site for women to feel comfortable to freely express their opinions. However, the Social Desirability Scale did not differ between Craigslist and the community partners group suggesting the difference in pretest attitudes could be due to actual sample differences.

In addition to the hypothesized main effects, an interactive effect for recruitment type and condition was also tested. Although not significant, the findings revealed that there were trending differences in attitudes between the intervention group and the control group for those who were

recruited from community partners. When attitudes were measured using Condom Use Attitude scale at the attitudinal level, the interaction was not significant for the affective component or the composite measure. However, there was a significant interaction between recruitment type and condition for the cognitive component of attitudes. The venue participants were recruited from mattered for those in the intervention condition such that community partner participants reported more favorable cognitions about using condoms at follow-up than the Craigslist participants. Recruitment type did not matter for participants in the control group.

In addition to assessing the effects of recruitment type and condition on various attitudes measures, condom use intentions were assessed to see if intentions to use condoms would vary based on these factors. Similar to the attitude findings, there were no significant differences in the dichotomous intent to use a condom the next time one has sex between the control and intervention condition. There were significant differences in intentions to use condoms based on recruitment type. Consistent with the attitude measure, those who were recruited by community partners reported higher intentions to use condom the next time they have sex than the Craigslist group. Using the plan to use condoms item, there were also no significant differences in the likelihood of using condoms during one's next sexual encounter based on condition or recruitment type. Although changes in condom use intentions were not expected because the sessions were specifically designed to change condom use attitudes; the results in the current study found that the community partner group reporting more positive attitudes along with higher intentions. These results are consistent with prior research revealing that those with more positive attitudes also report higher intent to use condoms.

Study 3 also examined the interactive effect of romantic partner status and attitudes across time. The findings showed that women who did not have a romantic partner reported more positive

attitudes across time than those who did have a romantic partner. The persuasive video and HIV prevention presentation promoted consistent and correct condom use as well as HIV testing.

Women who were not in romantic relationships may have perceived themselves to be more at risk potentially making the message more personally relevant to them. This may have influenced how much they paid attention to the message and in turn changing their attitudes toward using condoms. In contrast, women who had a romantic partner may not have perceived the message as personally relevant to them. Women who believe themselves to be in committed, monogamous, trusting, relationships typically do not perceive themselves to be at risk for contracting HIV through unprotected sex (Seal & Palmer-Seal, 1996; Seal, 1997).

Study 3 examined whether there was a three way interaction between condition, recruitment type, and attitudes across time. The findings revealed that for the community partners group, there were no significant differences in attitudes across time between the intervention and control group. However, for those who were recruited from Craigslist, there was a significant positive shift in attitudes from pretest to posttest in the control group. For the intervention group recruited from Craigslist, this change was not significant. It is unclear why there was a significant change in attitudes in the Craigslist control group condition. There was also a trending (but not significant) positive change in attitudes toward using condoms from pretest to follow-up in both the control group and the intervention group for those who were recruited by Craigslist. The lack of significant change among the community partner groups may be due to the fact that their attitudes towards using condoms were so positive at pretest that the strong pro-attitudinal messages may not be as effective at making already positive attitudes toward using condoms more positive.

Study 3 sought to examine whether adding a persuasive video designed to change attitudes toward using condoms would increase these attitudes compared to information regarding HIV

prevention. Although the expected difference between the intervention condition (HIV prevention information plus video) and the control condition (HIV prevention information only) did not occur among both recruited groups, some interesting patterns emerged. The current study provided preliminary evidence that the addition of the attitude change video to an information only pilot intervention led to some positive changes in attitudes for a subset of African American women.

General Discussion

The present research involved three studies designed to examine which characteristics of persuasive communications change attitudes toward condom use among African American women. Using a multi-component attitudinal approach, the relations between message characteristics and attitude change were examined. Previous research has found higher attitude-behavior consistency when examining attitudes at the component level than using the overall summary evaluation (deWit et al, 1997a; Hood & Shook, under review). Given the key role attitudes play in health promotion and prevention theories; it is important to understand the underlying structure of attitudes and the most effective ways to change them. Study 1 explored the effect of message type and source characteristics on attitude change among a sample of African American women attending college. The second study used a community sample in order to replicate and broaden the scope of the findings of the first study. The third study further tested the findings of the first two studies by comparing a pilot attitude change intervention an information only control condition. Across the three studies, several notable and interesting effects and patterns emerged: some were in keeping with the original hypotheses; some did not support the hypotheses; and still others emerged unexpectedly.

Hypothesized Effects

Message Type. The first hypothesis concerned the relation between message type (affective or cognitive) and changes in attitudes toward using condoms among African American women. A substantial body of work in the attitude change literature (Brug et al., 1998; Edwards, 1990; Fabrigar & Petty, 1999; Millar & Millar, 1990; Petty et al., 1986) has found that messages that match the attitude base are more persuasive than those that do not. Attitudes based in affect will change more with an affective-based message, and attitudes based in cognition will change more

with a cognitive-based message. Researchers have found that women's attitudes toward using condoms are heavily based in the affective component (de Wit et al., 1997a; Hood & Shook, under review). In keeping with previous work in the attitude change tradition, a main effect of message type was therefore hypothesized in Studies 1 and 2. Specifically, it was expected that messages composed of affective arguments would promote more positive change in attitudes than messages composed of cognitive arguments. In Study 1, the effect of message type on attitude change was in the expected direction. Those who watched the affective message had more positive change in condom use attitudes from pretest to posttest than those who watched the cognitive message. A similar pattern emerged in Study 2 with a community sample of African American women. Those who watched the affective video had more positive change in condom use attitudes from pretest to posttest than those who watched the cognitive video. However, likely due to a small sample size, the results in Study 2 did not reach statistical significance.

Similar results were found using the composite condom use scale measured at posttest: those who watched the affective message reported more positivity toward condom use compared to those who watched the cognitive video. Although the results were not significant, the same pattern emerged in Study 2. Attitudes toward condom use were also measured at the attitudinal component level. When the affective component was measured at posttest, participants who watched the affective video had more favorable feelings toward using condoms than those who watched the cognitive video. This pattern was not seen with the cognitive component. Message type did not affect the cognitive component of condom use attitudes. A corresponding pattern emerged in Study 2. The lack of difference between message conditions for the cognitive component may potentially be due to the fact that to begin with both groups had positive cognitions about using condoms. The cognitive message which contained strong pro-attitudinal messages may not be as effective at

making already positive beliefs more positive. In contrast, the affective component of attitudes may have been generally less positive than the cognitive component leaving more room for change. This allowed for strong pro-attitudinal affective messages to positively shift women's attitudes.

Across two measures of condom use attitudes, the affective message yielded more positive feelings toward using condoms than the cognitive message. These results are consistent with previous research and provide further support for the matching hypothesis (Edwards, 1990; Fabrigar & Petty, 1999; Huskinson & Haddock, 2004; Millar & Millar, 1990). Matching a persuasive message with the predominant base of an attitude yields more positive change than a message that mismatches the attitudinal base.

Source Characteristics. The second hypothesis tested the effect of source characteristics on changing attitudes toward condom use. Years of work examining how the source of a message influences attitude change has shown that the audience must find the source reliable, credible, trustworthy, and knowledgeable (Heesacker, Petty, & Cacioppo, 1983; Petty et al., 1981; Witkin, Goodenough, & Oltman, 1979). Persuasive messages are more convincing if the source of the message is someone with whom the audience can identify (Brock, 1965; Goethals & Nelson, 1973; Cacioppo & Petty, 1982). Based on this general pattern, it was hypothesized that a message delivered by the female source would lead to more change in attitudes toward using condoms than the message delivered by the male source.

In Study 1, with a sample of African American college students, the effect of source characteristics on attitude change was significant in the predicted direction. Those who watched the video delivered by a female source had more positive change in condom use attitudes from pretest to posttest than those who watched the video delivered by the male source. A similar, but nonsignificant, pattern was found in Study 2. In a community sample of African American women,

participants who watched the video delivered by the female source had more positive change in condom use attitudes from pretest to posttest than participants who watched the male source video. As with the main effect for message type, the non-significant results in Study 2 were likely due to limited sample size.

Comparable results were found using the composite condom use scale measured at posttest. Participants who watched the female source video reported more favorable attitudes toward using condoms than those who watched the male source video. Although the results were not significant, a similar pattern emerged in Study 2. Attitudes toward condoms were also measured at the attitudinal component level. When attitudes were broken down and measured at the component level, there were no differences in posttest condom use attitudes between sources for both the affective component and the cognitive component. Replication of this pattern was found in Study 2. The lack of attitude change at the component level may be due to the fact that the aspects of the message women were focusing on may cut across the two components of attitudes. In summary, source characteristics affected both attitude change and the composite attitude measure. Women found the female source more persuasive than the male source.

Message Type X Source. The third hypothesized effect in the current studies was an interaction between message type and source characteristics. Previous researchers found that messages delivered by a source that the audience is able to identify with are more persuasive than those delivered by a less identifiable source (Brock, 1965; Goethals & Nelson, 1973; Cacioppo & Petty, 1982). Similarly, messages that match the base from which the attitude was formed are more persuasive than messages that are based in another component (Edwards, 1990; Huskinson & Haddock, 2004). Thus, it was predicted that the most positive change in condom use attitudes would be seen in the video with the combination of a female source and affective message type.

Results from both Studies 1 and 2 revealed no significant interactive effect for source and message type. Yet, the pattern of means showed that in both studies the affective message delivered by the female source resulted in the most positive change from pretest to posttest than the three other conditions. Additionally, although not significant, the posttest condom attitudes measure also resulted in more positive attitudes in the female/affective condition. McCroskey and Mehrley (1969) found that the delivery quality of the message influences attitude change. Specifically, the quality of the presentation in addition to message and source characteristics influences attitude change. The lack of an interactive effect could potentially be due to the quality and aesthetic properties of the videos. The videos were produced by the researcher who had no previous experience making videos. The picture and sound were not high quality and the actors were psychology undergraduate students. These factors could have drawn attention away from the message, thus, lessening its effect on attitude change. Similarly, the messages were not aesthetically appealing. The video backgrounds were designed to be as neutral as possible to eliminate any other factors that could have contributed to the attitude change. Therefore, actors were placed in front of a white wall wearing black t-shirts. Although this allowed for the isolation of the effects of the independent variables, it may not have fully grabbed and/or kept the attention of less motivated participants. Previous research on process models of attitude change (e.g., Elaboration Likelihood Model) has shown that attitude change can occur when participants are not giving the message their full attention (Petty & Brock, 1976; Petty & Cacciopo, 1986; Petty Wells, & Brock, 1976); however, this change is not as large nor as stable as change that occurs when participants are paying attention. It is plausible that attitude change could have occurred in participants that were distracted by the message quality. This could account for the main effects found in the current study but not the interaction effects.

Intentions

A substantive body of work has shown changes in attitudes also lead to changes in intentions (Albarracin et al., 2001; Ajzen & Fishbein, 1977; Basen-Engquist & Parcel, 1992; Jemmott & Jemmott, 1991; Richard & van der Plicht, 1991; Wilson, Zenda, & Lavelle, 1991). Intentions were assessed to see if there were shifts in intentions that accompanied the changes in attitudes. Across both Studies 1 and 2, there were no significant changes in intentions to use condoms based on message type or source. As mentioned previously, the messages were designed to change attitudes, not intentions. Furthermore, the messages were developed to be included in interventions that have demonstrated effectiveness in changing condom use intentions and behavior. Therefore, it was not surprising that the messages did not affect intentions to use condoms.

Summary of Study 1 and 2

In Study 1, main effects were found for both message type and source characteristics. However, the interaction was not significant. The quality of the videos could account for the lack of significance for the interactive effect and the small effect sizes for the main effects. Additionally, having a message that was more attention grabbing, fun, and catchy could have also produced the expected effect. In Study 2, the pattern of means showed a similar pattern to Study 1 with the affective message delivered by the female source resulting in the most positive condom use attitude change. However, these results were not significant and must be interpreted with caution. The small sample size in Study 2 may account for the lack of significance. A larger sample may have yielded significant patterns analogous to Study 1.

The similar pattern of results of Studies 1 and 2 could also be due to similarities in the sample. Study 1 was conducted with a sample of college student. Many of the women (77.8%) from Study 2 reported having completed some college or having a college degree. The higher

levels of education reported by the sample in Study 2 could in part be due to the recruitment method. The primary method of recruitment for Study 2 was using Craigslist. Although flyers were distributed at community partner sites, 24 out of 27 women who participated were recruited from Craigslist. It is possible that by recruiting primarily from Craigslist that the sample was limited to a subset of the target population. African American women who participate in studies posted on Craigslist are likely to be more educated or have more socioeconomic resources than other women in the community.

Focus Group Themes

Several themes emerged from the focus groups discussions from Study 2. These themes included: condom use as a means of pregnancy prevention; negative attitudes toward using condoms; communicating messages through social media, TV, and radio; making messages that are fun, catchy, and informative; using celebrities and peers to deliver messages; and increasing the frequency of messages to match the importance of topic. Focus group members were more likely to associate condom use with pregnancy prevention. Most women felt that the primary purpose of condoms was to prevent pregnancy and that HIV and STI prevention was secondary. The finding that condoms were mostly for pregnancy prevention may have been due to the low perception of risk among the women. Women reported that there was a lack of awareness within the community that heterosexual African Americans and women in particular were at risk for contracting HIV from unprotected sex. Some reported that the absence of HIV prevention messages led them to believe that HIV was no longer a problem except for men who have sex with men. The majority of the women felt strongly about targeting messages towards teens, explaining that it is important to establish safe sex behaviors early and that educating young women of the potential consequences of unprotected sex could encourage some young women to wait to have sex. All women felt that

proper sex education is important and suggested possible avenues to educate people about sex. Several women reported that they were not properly educated about sex from their parents or from schools. Three women in two separate focus groups stated that they did not properly learn about sex until college which was after they had already become sexually active.

The women in the focus groups also spoke about the types of messages they thought would be effective in changing attitudes toward using condoms. They believed that messages should be fun, catchy, yet informative. Messages should be short but include a reference where one could get more information if interested. Messages should be delivered by celebrities or peers because these sources make the message more personally relevant. Personal narratives from peers and celebrities are also influential if the person is popular. The women reported that messages should be posted on websites like Facebook, YouTube, Hulu, and Pandora. Urban and Hip Hop media sites, social media, TV, and internet radio sites (other than Facebook, Hulu, and Pandora) were also popular suggestions.

In sum, women who participated in the focus group discussions felt that there was a lack of awareness and education in the African American community about HIV and the disproportionate risk for contracting the disease. The women believed that increasing education about sex both in schools and at home through parental discussions is needed to prevent the spread of HIV and other STIs among young people. The women felt that increasing the exposure of HIV prevention messages would raise the level of awareness and relative importance in the community. Placing messages in places where young people spend most of their time is important to be sure they are exposed to them. Many felt the primary location for HIV prevention messages is the internet, on websites that young people spend time. Other locations to place messages included TV and radio. The types of messages that should be used to target young African American women should be

catchy, exciting, interesting, but informative according to participants. These messages should include a funny phrase or jingle so that it is easy to remember and could potentially serve as a conversation starter for having safe sex conversations with partners. The results of the focus group discussions can be used to inform future message development.

Pilot Intervention

The goal of Study 3 was to examine the effectiveness of a pilot intervention in changing African American women's attitudes towards condom use and to determine whether this change would persist over a 3-month time period. After controlling for romantic partner status, the effects of recruitment type and condition on attitudes toward condom use were assessed across time for a community sample of African American women.

Condition. It was hypothesized that there would be a main effect for condition such that the intervention condition would result in more positive attitudes across time than the control condition. There were no significant differences between the intervention and the control group at the three different time points on the semantic differential measure of condom use attitudes. There were also no significant differences between conditions for the affective, cognitive, and composite components on the posttest condom use measure. These nonsignificant results may be due to the affective message not translating well in a group setting. Women in the first two studies watched the video privately on a computer wearing headphones. This setting may have minimized distractions. In Study 3, the video was shown in a group setting on a television. In this setting, there was potential for more distractions (i.e., talking, people fidgeting and moving about) and less focused attention to the content of the message. The time at which the video was shown may have also contributed to the lack of significant differences. Videos were viewed at the beginning of the session prior to the HIV prevention PowerPoint presentation and the group discussions. If the

videos were placed later in the intervention, larger shifts in attitudes may have occurred. With the videos placed at the beginning of the session, the emotional responses thought to be evoked by the affective messages could have dissipated after watching the HIV presentation and taking part in the group discussion.

Another potential reason for the lack of significant effect of condition could be due to the quality of the videos. Past research has found that the delivery quality of the message influences attitude change such that the quality of the presentation accompanied with other message characteristics influences attitude change (McCroskey & Mehrley, 1969). The poorer quality of the video may have been more salient when shown on a larger TV in a group setting than when shown on a laptop screen. This may account for the lack of significant differences between conditions.

Recruitment. Recruitment type was added as an independent variable, because it was significantly associated with outcome variables of interest. A main effect was found for recruitment type such that those who were recruited from a community partner had more positive attitudes toward condom use than those recruited from Craigslist. These results were also found with the condom use attitude measure using both the attitudinal components as well as the composite measure. The consistency in the pattern of both measures suggests that either the community partner group had more positive attitudes to begin with or the sessions were more influential in changing their attitudes. This may be due to the fact that the participants in the community partner group may not have had as much exposure to HIV prevention messages as the Craigslist group.

Romantic Partner X Time. In the pilot intervention, there was also an interactive effect of romantic partner status and time on attitudes. Those who did not have a romantic partner had more positive attitudes toward using condoms at posttest than at pretest and follow-up. This pattern was not seen for those who had a romantic partner. This could be due to fact that those without a partner

perceived the information as more personally relevant. Research in risk perception for HIV among women has shown that women perceive themselves to be at lower risk if they are in a monogamous relationship (Moore & Parker, 1999; Timmons & Sowell, 1999). Women without a romantic partner may have felt the need to use condoms to protect themselves with new sexual partners whereas those currently with a romantic partner may have perceived themselves to be less at risk and not needing to use condoms.

Recruitment X Condition. The interaction between recruitment type and condition was also tested. The findings revealed that there were trending differences in attitudes between the intervention group and the control group for those who were recruited from community partners. Those who were recruited from the community partners had more positive attitudes in the intervention group than in the control group. This difference was not seen in the Craigslist group. However, these results were not significant. This non-significant result could be due to the higher pretest scores in the community partner group. Participants in the community partner condition began with such positive attitudes toward using condoms that strong pro-attitudinal messages in the intervention condition may not have been as effective at making already positive attitudes significantly more positive.

Recruitment X Condition X Time. A three-way interaction between condition, recruitment type, and time was found while controlling for romantic partner status. The findings revealed that for the community partners group, there were no significant differences in attitudes across time between the intervention and control group. However, for those who were recruited from Craigslist, in the control condition there was a significant positive shift in attitudes from pretest to posttest. Additionally, in the Craigslist group, there was a marginally significant effect of time from pretest to follow-up for both the intervention group and the control group. For both

groups, follow-up attitudes were more positive than pretest attitudes. There was also a positive increase in the community partner intervention condition from pre to posttest; however, the pretest attitudes for this group were so positive, the shift was not significant.

Intentions

Condom use intentions were also assessed to see if intentions to use condoms would vary based on recruitment type and condition. There were no significant differences between the intervention and the control group on intentions to use condoms. This finding was consistent with the attitude results. However, there was a significant difference in planning to use condoms based on recruitment type. Also consistent with the attitude patterns, those who were recruited by community partners reported higher likelihood of using condoms the next time they have sex than the Craigslist group.

Pilot Intervention Summary

The pilot intervention sought to examine the effects of condition (control vs. intervention) on attitudes across three time points. Preliminary analyses led to the addition of recruitment type as a second independent variable. There were no significant overall difference between the control and the intervention condition across the three time points on the attitude measures.

The results revealed a three-way interaction between recruitment, condition, and time. Women recruited from Craigslist who were in the control condition reported significant attitude change from pretest to posttest. This pattern was seen for the Craigslist intervention group from pretest to follow-up. There were no significant differences in attitudes across time for the community partner group between conditions. This pattern of findings was unexpected. However, the findings for those who were recruited by Craigslist are encouraging. Those in the control group had a significant positive shift in attitude from pretest to posttest and these attitudes remained

positive for follow-up reporting slightly lower condom use attitudes than posttest. For the intervention condition, attitudes increased from pretest to posttest and then again from posttest to follow-up. Although these shifts were not significant, attitudes increased in the expected direction.

The results for the community partners group were very different. For the control group, attitudes were most positive at pretest and then lowest at posttest and shifted slightly more positively for follow-up. The differences in attitudes between time points were minimal and were not significant. In the intervention group, women reported positive attitudes at pretest, attitudes became more positive for posttest, and then decreased below pretest attitudes for follow-up. The differences in attitude change between the three time points were negligible. The opposing patterns between recruitment types may be due to the fact that the messages were developed and piloted on college students. Although the level of education was not obtained on the demographic form for Study 3, impressions based on informal discussions before and after group sessions were that the Craigslist group had higher levels of education than the community sample. It may have been differences in education that accounted for the differences between recruitment venues. The college students in Study 1 may have been similar to the Craigslist group in that most of the Craigslist group had some college education.

The lack of significant difference between conditions could also be due to some of the other factors previously mentioned (i.e., quality of group discussions and method). These factors could influence whether the women found the message personally relevant and the source identifiable. In the community partner condition, the message may actually have worked; however, their pretest attitudes are so positive that the message could not produce a positive enough shift to be significant.

Limitations

There are a few limitations that should be noted in the current studies. First, all three studies were conducted with convenience samples. Study 1 was conducted with Virginia Commonwealth University psychology students who participated for course credit. The use of college students limits the generalizability of Study 1 results. Although Study 2 replicated the design using a community sample, the sample size was small and the participants were primarily recruited from Craigslist. The Craigslist sample was also predominately college educated which calls into question whether college attendance influences condom use attitudes and responsiveness to message characteristics. Another study limitation is that the data in Studies 1 and 2 were collected over a short period of time (i.e., 1 hour). Therefore, there is no way to know whether the change at posttest remained stable over time.

Attitudes at each time point in Studies 1 and 3 were skewed and kurtotic. Pre- and posttest attitudes among the college students in Study 1 were highly negatively skewed as well as the attitudes from the community sample in Study 3. These issues were addressed by transforming the data prior to analysis; however, transformation poses some challenges for interpretation. The non-normality of the data may be due to the sample not being representative of the larger population of African American women.

Another potential sample limitation of the current studies was self-selection bias. The participants in the current studies voluntarily participated in studies focused on prevention, dating, and relationships. In Study 1, the SONA posting specifically referenced HIV prevention and safer sex behaviors. In Studies 2 and 3, the flyers referenced healthy relationships which was a bit more inclusive and could have potentially attracted those who were not solely focused on prevention to participate. Studies 2 and 3 also offered monetary compensation for participants' time. Thus, those

who responded to the recruitment flyers or Craigslist posting could have been motivated to protect themselves from HIV or financially motivated to participate.

Recruitment method was a limitation in the current studies. The two primary recruitment sites may have been limiting in different ways. Craigslist as a recruitment venue is only available to those who have computer access and are familiar with the site. This site could have limited the pool of available applicants to those who were more educated and who had more resources. Conversely, the community partner recruitment venue could have been limiting in that the primary community partner was in a lower income area. Creighton Court Resource Center is located in the heart of Creighton Court public housing community. The recruitment site could have limited participation to those who work, reside, or visit in the community.

Another limitation of this study was the reading level of the survey measures. The survey measures were developed for participants with a 9th grade reading level; however, some of the community participants in Studies 2 and 3 had difficulty reading and understanding the questionnaire. There were certain words used in the surveys (e.g., monogamous, heterosexual, uncharacteristic, and deliberating) with which some participants were unfamiliar. Some participants felt comfortable asking for words to be explained in the group setting. However, other groups were quieter and did not ask for clarification. Future studies should be more mindful of the diverse backgrounds of people in the community and develop measures that better fit the target population.

Future Work

Replication and Extending Current Work. The generalizability and scope of the current research could potentially be broadened by replicating the current studies using more inclusive recruitment strategies. A more representative sample could be obtained by using multiple recruitment methods. These methods could include using social media (i.e., Twitter & Facebook);

posting ads in newspapers, beauty salons, and local magazines; recruiting at churches, community centers, and gyms as well as using the methods outlined in the current studies. Finding attitude change with a more representative sample would provide more support for the current findings and increase the applicability of the message in prevention research. Another avenue for broadening the scope of the current research would be to investigate individual difference variables to see how these may influence components of persuasion. Individual factors that may influence condom use attitudes include education, socioeconomic status, religiosity, perception of risk, self-esteem, health locus of control, importance of health behaviors, and age of sexual initiation. Understanding how these factors influence persuasion could aid in tailoring messages for specific individuals that are at high risk of contracting HIV or STIs.

Future work in message development. Based on the findings of the focus groups, next steps for future research could be to revise attitudinal messages to incorporate some of the suggestions from the women. One potential direction could be to revise the affective message to be more catchy and fun to see if these changes influence attitudes. This line of research could expand the current work by further examining the role attention plays in changing prevention attitudes. If messages are more attention grabbing and memorable, they could potentially yield lasting changes in attitudes.

Another line of future work would be to place messages on popular sites like YouTube and Facebook and track video trends. This could help inform when and where to place messages to attract audiences with certain characteristics or risk factors. Specifically, basic demographic information (i.e., age, gender) of viewers can be tracked to see who is watching the message, what types of videos they are viewing before and after viewing the messages, as well as popular search

terms of related information. The information could be used to launch campaigns to influence changes in attitudes in large groups of people.

A different line of work could focus on developing more interactive messages to examine whether adding behavioral components can change attitudes and intentions. Past research has shown that self-generating arguments about safe sex as well as practicing safer sex behaviors can change attitudes and intentions (Janis & King, 1954). Developing more active rather than passive persuasive messages could result in greater changes in attitudes. This line of studies could potentially provide information that could be used to develop an online self-paced tailored intervention.

During focus group discussions, condom use was consistently associated more with pregnancy prevention than STI/HIV prevention. Even when participants were specifically asked about condoms and HIV prevention, they quickly returned to the condoms pregnancy association. Therefore, another line of potential research would be to use messages to change the primary association of condoms with pregnancy prevention to condoms with HIV/STI prevention. It would be interesting to examine whether changing this association would lead to changes in attitudes. It would also be noteworthy to examine whether changing the association from condoms and pregnancy prevention to condoms and HIV prevention will also change how women evaluate the persuasiveness of HIV prevention messages.

Future work in programming. Future work in programming could further the current research by testing affective messages in existing interventions to examine whether the persuasive videos will result in positive shifts in attitudes toward using condoms and whether these changes will persist over time. Another possible avenue for HIV prevention would be to create messages for HIV testing based on the attitude change techniques outlined in the current research. Once these

messages have been developed they can be include in existing interventions to determine if the newly developed messages change attitudes toward HIV testing. Testing is an important component to current HIV prevention interventions. HIV testing as a prevention tool has wide applicability. It can be used as a method of preventing the spread of HIV in groups who do not use condoms (e.g., religious groups and couples trying to get pregnant). Combining testing messages with consistent condom use could change attitudes but also promote positive prevention behaviors. Using the methods outlined in the current studies, messages could be developed focused on promoting HIV testing and condom use for people of varying relationship statuses. Future prevention efforts could also potentially include prevention messages in tailored interventions; dividing the message into segments that could be pieced together and personalized based on individual factors (i.e., partner status or level or perceived risk). Finally, using these methods, new messages can be developed for other at risk populations.

Conclusion

In summary, the current studies integrated work from persuasion, attitudes, and health promotion in an effort to better understand the types of message that change attitudes toward using condoms. Specifically, the role of message type and source in changing attitudes toward using condoms was examined. This series of studies extended these associations by incorporating an attitude change pilot intervention to examine whether a persuasive communication could change attitudes when compared to information alone. Taken together, these studies provide evidence that, under certain conditions, an affective message delivered by a female source can change attitudes toward using condoms. In addition, these studies highlight that individual difference factors (e.g., romantic partner status) coupled with persuasion techniques can influence attitudes. These factors can potentially be used to develop messages to include in HIV prevention interventions.

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Footnotes

1. Participants chose pseudonyms to be referred to during the focus group discussions.
Pseudonyms were used in reporting the results
2. The television used in the community partners group was a 25in screen and the Craigslist group was a 32in screen.
3. Participants recruited through community partners had more children and were slightly older than the Craigslist group.
4. The power analysis was re-computed for a 2 X 2 X 3 mixed methods ANOVA for a sample of 113. The estimated power for this study remained .999

Appendix A: Message Type Video Transcripts

Affective Messages (word count 523)

Line 1: Ladies it's the 21st century, it's time to set a new standard for sex. Who says you can't bring your own protection into the bedroom? Judging by the statistics on women and STDs it would be a smart move.

Line 2: There is no reason why women between 15 and 24 are the most affected by sexually transmitted infections. We as women deserve to have the choice of whether or not we want to use condoms, because we all deserve the right to protect our bodies. Everyone should have an equal say when it comes to using condoms, not just the person who has to wear them.

Line 3: A good amount of this problem is due to dishonesty among partners, which leaves everyone with a little more than fond memories. If we are comfortable enough with someone to take everything off, we should be able to feel comfortable enough to discuss putting a condom on. Sex is a special thing for most women and they take it to heart. The truth is, you are special and the person you share your body with should treat you like a treasure.

Line 4: Whether or not you decide to share an intimate moment with a partner or a not so familiar lover, protection should always be an option for you. If there is any question whether or not you should, you should. If you're not 100% sure, at least be 100% safe, use a condom every time. Take your time, slow it down, make it sexy *and* safe.

Line 5: Safe sex is the sexiest...Nothing to be scared of. When you decide to use condoms you can be sure that you will be protected and all you have to worry about the pleasure, not the scary possibilities.

Line 6: There are so many positives for women when it comes to condoms, positives that can put a new twist on sex. Believe me between the wide varieties of specialized condoms out there, you can certainly be both safe and sexually satisfied.

Line 7: Condoms are like men, they come in all different shapes, colors, and sizes, find out which ones satisfy you. They have a lot to offer you so why not treat yourself to something new. Stand up for yourself and what you represent as a beautiful individual, stand up for safe sex.

Line 8: Tell him to go New School and wrap it up, or forget about it. You have the right to have protected sex if that is what you want, and if your partner disapproves maybe a new partner would be a smart choice. Be smart and safe, protect your success. You have worked too hard and made it through too much to let someone else's carelessness ruin your future.

Line 9: And more important make sure if you are giving someone all you have, that they aren't giving you something they got from someone else. You were not meant to be part of the statistic you were created to shine, so keep in mind safe sex is great sex, protected and pleasurable.

Cognitive Messages (Word Count 523)

Line 1: Ladies, we've been doing some research on your behalf and we've found some surprising information that may be of importance to you.

Line 2: Bringing about awareness might even save some lives...On a nation-wide scale; AIDS is a common killer of young African American women, second to cancer & heart disease. This is a staggering fact and its where our research began. We all know most STDs come from unprotected sex so the answer seems simple, promote safer sex, so that we all have a higher chance at living happy, healthy lives.

Line 3: More specifically, nearly two-thirds of all new sexually transmitted infections (STIs) occur among college age students (15– 24-year-olds). It looks like along with practicing good studies skills, we should also be practicing safer sex. Even more shocking, statistics show more than 50% of STDs and AIDS infections are transmitted from one partner to another while in committed relationships, due to the lack of condom use. If there is a chance, don't take it.

Line 4: Latex condoms, when used consistently and correctly, are highly effective in preventing the sexual transmission of HIV, the virus that causes AIDS. On the bright side, we are not alone when it comes to practicing safer sex, because condom companies understand their customers have needs, and that's why they offer specialty condoms for every need you can think of.

Line 5: Common complaints about condoms are the rubbery texture and the uncomfortable fit, but all that has been taken care of thanks to the courtesy of condom companies. Certain condoms are made 15% larger (width and length wise) to offer more freedom for movement and a comfortable fit. Some condoms are designed to feel as soft as skin for more sensitive users.

Line 6: Extended Pleasure, Thintensity, Extra Sensitive, Pleasure-curve angled, Shared Pleasure, Warming Sensation, and Ecstasy are just a sample of the spice condoms can add to your sex life.

Line 7: Most condoms are triple tested to ensure the highest quality and reliability for its customers and laboratory studies have demonstrated that latex condoms provide an essentially impermeable barrier to particles the size of STD pathogens.

Line 8: The question is how and where can you pick up some of your own? Did you know that Student Health offers a variety of condoms at reduced prices for all students, even for 20 cents, and sometimes you don't even have to ask!

Line 9: Or next time you're out keep in mind Wal-Mart, Rite Aid, Kroger, and most 7-11s are all places around VCU's campus that offer a wide selection of condoms. A 3-pack of condoms costs around \$5 at Kroger or 7-11 and a 10-pack costs less than \$10 at Wal-Mart. That reminds me I need to restock.

Line 10: Well no matter when or where you plan on having sex next you can rest assured knowing variety, convenience, and reliability are just a few things you can count on with condoms.

Line 11: Practicing safe sex and getting tested are two things you can do for yourself, your partner, and your future children.

Appendix B: Attitudes toward Condom Use Semantic Differential

What do you think about using condoms? Please rate condom use on the following dimensions.

Bad -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 Good

Unfavorable -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 Favorable

Negative -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 Positive

Harmful -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 Beneficial

Foolish -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 Wise

Against -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 In Favor

Practical -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 Impractical

Safe -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 Risky

Reliable -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 Unreliable

Pleasant -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 Unpleasant

Satisfying -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 Unsatisfying

How important do you think this issue is to them?

Very -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 Very

Important

Unimportant

Appendix C: Need for Cognition Scale

For each of the statements below, please indicate to what extent the statement is characteristic of you. Please use the following scale:

1	2	3	4	5
extremely uncharacteristic	somewhat uncharacteristic	uncertain	somewhat characteristic	extremely characteristic

1. _____ I would prefer complex to simple problems.
2. _____ I like to have the responsibility of handling a situation that requires a lot of thinking.
3. _____ Thinking is not my idea of fun.
4. _____ I would rather do something that requires little thought than something that is sure to challenge my thinking abilities.
5. _____ I try to anticipate and avoid situations where there is a likely chance I will have to think in depth about something.
6. _____ I find satisfaction in deliberating hard and for long hours.
7. _____ I only think as hard as I have to.
8. _____ I prefer to think about small, daily projects to long-term ones.
9. _____ I like tasks that require little thought once I've learned them.
10. _____ The idea of relying on thought to make my way to the top appeals to me.
11. _____ I really enjoy a task that involves coming up with new solutions to problems.
12. _____ Learning new ways to think doesn't excite me very much.
13. _____ I prefer my life to be filled with puzzles that I must solve.
14. _____ The notion of thinking abstractly is appealing to me.
15. _____ I would prefer a task that is intellectual, difficult, and important to one that is somewhat important but does not require much thought.
16. _____ I feel relief rather than satisfaction after completing a task that required a lot of mental effort.
17. _____ It's enough for me that something gets the job done; I don't care how or why it works.
18. _____ I usually end up deliberating about issues even when they do not affect me personally.

Appendix E: Condom Use Attitude Measure

Please read the following statements carefully and indicate how much you agree or disagree using the scale below. Please answer according to how you actually feel, **not** how you think you should feel or would like to feel. Thank you.

0	1	2	3	4	5	6
Strongly Disagree	Mostly Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Mostly Agree	Strongly Agree

1. Condoms are pleasant to use
2. In my opinion, condoms are too much trouble
3. I think condoms look ridiculous
4. Condoms are inconvenient
5. The thought of using a condom is disgusting
6. I don't think that condoms interfere with the enjoyment of sex
7. Sex doesn't feel as good when you use a condom
8. Sex with a condom doesn't feel natural
9. A problem with condoms is that they reduce sexual stimulation
10. The use of a condom can actually enhance sexual pleasure for both myself and my partner
11. Condoms are convenient and easy to carry
12. Condoms are messy and awkward to dispose of
13. Condoms are difficult for a man to wear
14. Condoms take away the pleasure of sex
15. Condoms don't feel good
16. I feel closer to my partner without a condom
17. Condoms change climax or orgasm
18. Condoms are a lot of fun
19. Condoms are messy
20. Condoms are a hassle to use
21. Condoms are disgusting
22. I dislike condoms because they decrease sensitivity during intercourse
23. People can get the same please from "safer" sex as from unprotected sex
24. The proper use of a condom could enhance sexual pleasure
25. The use of a condom can make sex more stimulating

Appendix F: Condom Use Intentions and Sexual History

1. In the past 2 months, how many times have you had vaginal intercourse?
 _____ (# of times in past 60 days)
 _____ I have not had sex in past 60 days.

2. In the past 2 months, when you had sex how many times was a condom used?
 _____ (# of times used a condom in past 60 days)
 _____ I have not had sex in past 60 days.

3. In the past 2 months, how many sexual partners have you had?
 _____ (# of men in past 60 days)
 _____ I have not had sex with a man in past 60 days.

4. In the past 2 months, how many times did you exchange sex for drugs, shelter, food, or cash?
 _____ (# of times exchanged sex in past 60 days)
 _____ I have not exchanged sex for drugs, shelter, food, or money in past 60 days.

5. In the past 2 months, how many times did you have sex under the influence of alcohol?
 _____ (# of times engaged in sex while under the influence of alcohol)
 _____ I have not had sex under the influence of alcohol in past 60 days.

6. In the past 2 months, how many times did you have sex under the influence of drugs?
 _____ (# of times engaged in sex while under the influence of drugs)
 _____ I have not had sex under the influence of drugs in past 60 days.

7. The last time you had sex did you use a condom? **YES** **NO**
 _____ **I've never had sex.**

8. The next time you have sex do you plan to use a condom? **YES** **NO**
9. In the next 2 months, do you plan on using a condom if you have sex? **YES** **NO**

10. In the next 2 months, do you plan on using a female condom? **YES** **NO**

11. In the past 2 months, did you attempt to use the female condom? **YES** **NO**

12. In your lifetime, have you ever been tested for HIV? **YES** **NO**

13. In the past month, have you been tested for HIV? **YES** **NO**

14. What is the probability out of 100 that you will use a condom the next time you have sex?

15. Do you use condoms? Yes No

16. If so, how often do you use condoms?

- a. Always
- b. Usually
- c. Rarely
- d. Never

17. How likely would you be to buy condoms?

Unlikely to buy -4 -3 -2 -1 0 1 2 3 4 Likely to buy

18. How likely would you be to recommend condoms to others?

Unlikely to recommend -4 -3 -2 -1 0 1 2 3 4 Likely to recommend

19. How likely are you to use a condom the next time you have sex?

Unlikely to use -4 -3 -2 -1 0 1 2 3 4 Likely to use

20. Would you like to receive a free sample pack of condoms?

1 2
Yes No

21. Do you have a brand that you prefer? Yes No

22. What brand of condoms do you normally use?

Appendix G: Demographics for Study 1

1. How old are you? _____ (years)
2. What is your race? (Select one or more)
 - a. Black/African American
 - b. Hispanic or Latino
 - c. Native American
 - d. Other (specify) _____
 - e. Asian
 - f. White
3. What is your primary language?
 - a. English
 - b. Spanish
 - c. Other (specify) _____
4. How would you describe yourself?
 - a. Straight/Heterosexual
 - b. Bisexual
 - c. Gay/Lesbian
 - d. Unsure
 - e. Other (specify) _____
5. Do you currently have a romantic partner?
 - a. Yes
 - b. No
6. Are you currently married?
 - a. Yes
 - b. No
7. How long have you and your romantic partner or spouse been together?

 - a. I do not have a romantic partner
 - b. We have been together for
8. Are you living with your romantic partner?
 - a. Yes
 - b. No
9. Do you have children? If yes, how many?
 - a. Yes, I have _____ children
 - b. No
10. How old were you when you had your first child?
 - a. _____ (years)
 - b. I do not have children
11. What best describes your year in school?
Freshman Sophomore Junior Senior
Other please describe _____
12. Are you currently sexually active?
 - a. Yes
 - b. No
13. How old were you when you first had sex?
_____ (years)

- b. I have never had sex
14. Are you currently pregnant? a. Yes
b. No
15. Have you ever been pregnant? a. Yes
b. No
16. Are you actively trying to get pregnant? a. Yes
b. No
17. Have you ever had a sexually transmitted disease or infection? a. Yes
b. No
18. How would you describe your current relationship status?
a. I am in a committed relationship
b. I am in a causal relationship
c. I am dating someone
d. I am seeing someone
e. I am involved with someone
f. I am hooking up with someone
g. I am single and looking
h. I am single and not looking
i. I am not involved with anyone
e. Other (specify) _____
19. What is your current method of birth control? (Check all that apply)
 nothing
 rhythm method
 the pill, the patch, the ring
 condoms
 diaphragm/cap/sponge
 implant
 shot/injection
 Other (specify) _____

Appendix H: Demographics for Study 2

Code Name: _____ Date: _____

1. What is your date of birth? ___ / ___ / _____ (e.g. 09/16/75)

2. What is the highest level of education you have completed? (Check one)

- Less than High School
- High School or GED
- Some College
- 2 year Associates Degree
- 4 year College Degree
- Graduate or Professional School

3. What is your race? (Check all that apply)

- African American/Black
- Hispanic/Latina
- Caucasian/White
- Asian
- Native American
- Other (Please specify) _____

4. What is your primary language?

- English
- Spanish
- Other (specify) _____

5. How would you describe yourself?

- Straight/Heterosexual
- Bisexual
- Gay/Lesbian
- Unsure
- Other (specify) _____

6. Do you currently have a romantic partner?

- Yes
- No

7. How long have you and your romantic partner

- I do not have a romantic partner
- We have been together for _____

8. Are you living with your romantic partner?

- Yes
 No

9. What is your current marital status? (Check one)

- Single, Never Married
 Living with partner
 Married
 Separated
 Divorced
 Widowed
 Other _____

10. How would you describe your current relationship status?

- I am in a committed relationship
 I am in a casual relationship
 I am dating someone
 I am seeing someone
 I am involved with someone
 I am hooking up with someone
 I am hooking up with someone
 I am single and looking
 I am single and not looking
 I am not involved with anyone
 Other (specify) _____

11. What is your main employment status? (Check one)

- Employed (Check one)
 Full time (40 hrs/week or more)
 Part time (30 hrs/week or less)
 Unemployed and looking for Work
 Unemployed and not looking for work
 Retired
 On Disability
 Other _____

12. If employed, what is your occupation, that is, what do you do for a living?

Occupation 1: _____

Occupation 2: _____

13. How many children do you have? _____
How many Girls? _____ Boys? _____

14. If you have children, what are their ages (Check all that apply)

- Under 5 /# of Children _____
 5 through 17/ # of Children _____
 18 through 21 / # of Children _____
 22 and older / # of Children _____

15. Do you consider yourself religious or spiritual?

- Yes, strongly so
 Yes, somewhat
 No

16. Are you a student?

- Yes
 No

17. Are you currently sexually active?

- Yes
 No

18. How old were you when you first had sex?

- _____ (years)
 I have never had sex

19. Are you currently pregnant?

- Yes
 No

20. Have you ever been pregnant?

- Yes
 No

21. Are you actively trying to get pregnant?

- Yes
 No

22. Have you ever had a sexually transmitted disease or infection?

- Yes
 No

Appendix I: Demographics for Study 3

1. How old are you? _____ (years)
 2. What is your race? (Select one or more)
 - a. Black/African American
 - b. Hispanic or Latino
 - c. Native American
 - d. Other (specify) _____
 - e. Asian
 - f. White
 3. What is your primary language?
 - a. English
 - b. Spanish
 - c. Other (specify) _____
 4. How would you describe yourself?
 - a. Straight/Heterosexual
 - b. Bisexual
 - c. Gay/Lesbian
 - d. Unsure
 - e. Other (specify) _____
 5. Do you currently have a romantic partner?
 - a. Yes
 - b. No
 6. Are you currently married?
 - a. Yes
 - b. No
 7. How long have you and your romantic partner or spouse been together?
_____ol style="list-style-type: none;"> - a. I do not have a romantic partner
 - b. We have been together for
8. Are you living with your romantic partner?
 - a. Yes
 - b. No
9. Do you have children? If yes, how many?
 - a. Yes, I have _____ children
 - b. No
10. How old were you when you had your first child?
 - a. _____ (years)
 - b. I do not have children
11. Are you a student?
 - a. Yes
 - b. No
12. Are you currently sexually active?
 - a. Yes
 - b. No
13. How old were you when you first had sex?
_____ (years)

- b. I have never had sex
14. Are you currently pregnant? a. Yes
b. No
15. Have you ever been pregnant? a. Yes
b. No
16. Are you actively trying to get pregnant? a. Yes
b. No
17. Have you ever had a sexually transmitted disease or infection? a. Yes
b. No
18. How would you describe your current relationship status?
a. I am in a committed relationship
b. I am in a causal relationship
c. I am dating someone
d. I am seeing someone
e. I am involved with someone
f. I am hooking up with someone
g. I am single and looking
h. I am single and not looking
i. I am not involved with anyone
e. Other (specify) _____
19. What is your current method of birth control? (Check all that apply)
 nothing
 rhythm method
 the pill, the patch, the ring
 condoms
 diaphragm/cap/sponge
 implant
 shot/injection
 Other (specify) _____

Appendix J: Perceived Risk for STIs

Please read the following statements carefully and indicate how much you agree or disagree using the scale below. Please answer according to how you actually feel, **not** how you think you should feel or would like to feel. Thank you.

1. How likely are you to contract an STI (sexually transmitted infection)?
Unlikely -4 -3 -2 -1 0 1 2 3 4 Likely

2. How likely are you to contract HIV?
Unlikely -4 -3 -2 -1 0 1 2 3 4 Likely

3. How worried are you about STI's?
 - a. Very Worried
 - b. Somewhat worried
 - c. Not Worried

4. How much do you think you can do to prevent STI's?
 - a. A lot
 - b. Some
 - c. Almost Nothing

Appendix K: Social Desirability Scale

1. Before voting I thoroughly investigate the qualifications of all the candidates.

a. True

b. False

2. I never hesitate to go out of my way to help someone in trouble.

a. True

b. False

3. It is sometimes hard for me to go on with my work if I am not encouraged.

a. True

b. False

4. I have never intensely disliked anyone.

a. True

b. False

5. On occasions I have had doubts about my ability to succeed in life.

a. True

b. False

6. I sometimes feel resentful when I don't get my way.

a. True

b. False

7. I am always careful about my manner of dress.

a. True

b. False

8. My table manners at home are as good as when I eat out in a restaurant.

a. True

b. False

9. If I could get into a movie without paying and be sure I was not seen I would probably do it.

a. True

b. False

10. On a few occasions, I have given up something because I thought too little of my ability.

a. True

b. False

11. I like to gossip at times.

a. True

b. False

12. There have been times when I felt like rebelling against people in authority even though I knew they were right.

a. True

b. False

13. No matter who I'm talking to, I'm always a good listener.

a. True

b. False

14. I can remember "playing sick" to get out of something.

a. True

b. False

15. There have been occasions when I have taken advantage of someone.

a. True

b. False

16. I'm always willing to admit it when I make a mistake.

a. True

b. False

17. I always try to practice what I preach.

a. True

b. False

18. I don't find it particularly difficult to get along with loudmouthed, obnoxious people.

a. True

b. False

19. I sometimes try to get even rather than forgive and forget.

a. True

b. False

20. When I don't know something I don't mind at all admitting it.

a. True

b. False

21. I am always courteous, even to people who are disagreeable.

a. True

b. False

22. At times I have really insisted on having things my own way.

a. True

b. False

23. There have been occasions when I felt like smashing things.

a. True

b. False

24. I would never think of letting someone else be punished for my wrong-doings.

a. True

b. False

25. I never resent being asked to return a favor.

a. True

b. False

26. I have never been irked when people expressed ideas very different from my own.

a. True

b. False

27. I never make a long trip without checking the safety of my car.

a. True

b. False

28. There have been times when I was quite jealous of the good fortune of others.

a. True

b. False

29. I have almost never felt the urge to tell someone off.

a. True

b. False

30. I am sometimes irritated by people who ask favors of me.

a. True

b. False

31. I have never felt that I was punished without cause.

a. True

b. False

32. I sometimes think when people have a misfortune they only got what they deserved.

a. True

b. False

33. I have never deliberately said something that hurt someone's feelings.

a. True

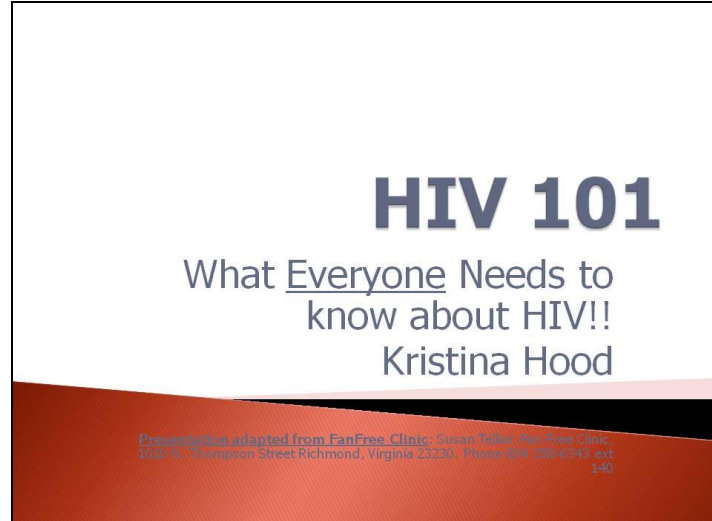
b. False

Appendix L: Focus Group Questions

1. Why do you think people in the community are becoming infected with HIV?
2. What do you think about condoms as a preventative strategy for HIV?
3. What do people think about condom use?
4. Do people even think about using condoms? Why or why not?
5. What do you think are the advantages and disadvantages of using condoms?
6. Why do you think that some women who have sex do not use condoms all the time?
7. Are condoms easy to get in your community?
8. How do people feel about HIV testing?
9. What resources are available in the community regarding HIV prevention?
10. What do you think are some of the barriers to HIV prevention for young African American women?
11. Where do you see or hear information about condom use?
12. What condom use messages do you think are working?
13. What messages do you think are NOT working?
14. Where are the best places to reach people with messages about using condoms?
15. Who would be the best person to deliver condom use messages?
16. If there were unlimited resources, what prevention services would you like to see?
17. What would you suggest for HIV prevention?
18. What else would you like to say about HIV prevention?

Appendix M: HIV 101 PowerPoint Presentation


Slide 1



HIV 101
What Everyone Needs to
know about HIV!!
Kristina Hood

Presentation adapted from FanFree Clinic: Susan Teller, FanFree Clinic,
1021 N. Thompson Street Richmond, Virginia 23220. Phone: (804) 798-6343 ext
140

Slide 2



Did you know...?

Slide 3

Word Play

- ▶ H -
- ▶ I -
- ▶ V -

- ▶ A -
- ▶ I -
- ▶ D -
- ▶ S -

Slide 4

Word Play

- ▶ H - Human
- ▶ I - Immunodeficiency
- ▶ V - Virus

- ▶ A - Acquired
- ▶ I - Immune
- ▶ D - Deficiency
- ▶ S - Syndrome

Slide 5

HIV

- ▶ Human
- ▶ Immunodeficiency
- ▶ Virus

It's a virus that attacks the Human Immune System, making it deficient. Unable to protect you from disease and infection.

HIV is a *Lentivirus* within the **Retrovirus** group:
Lentivirus: Lenti is Latin for Slow = Long incubation, persistent infection, High mutation rates, delivers significant genetic information into DNA of host cells!

Slide 6

AIDS

- ▶ Acquired
- ▶ Immune
- ▶ Deficiency
- ▶ Syndrome

~Not everyone who has HIV has or will develop AIDS. There are 4 stages of HIV, AIDS is 4th

~Modern medicine has allowed those infected to remain in earlier stages of HIV as long as they adhere to treatment!

Fluids that Transmit HIV

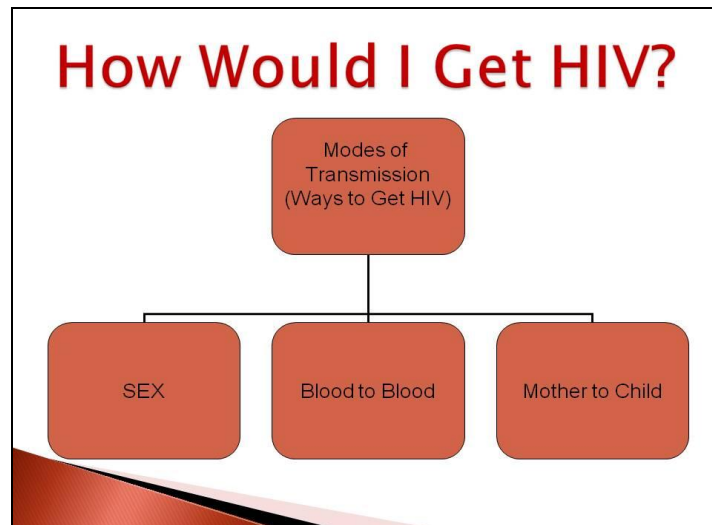
- ▶ Blood
- ▶ Semen
- ▶ Vaginal Fluid
- ▶ Breast Milk

HIV is **NOT** transmitted by saliva, tears, urine or sweat!!

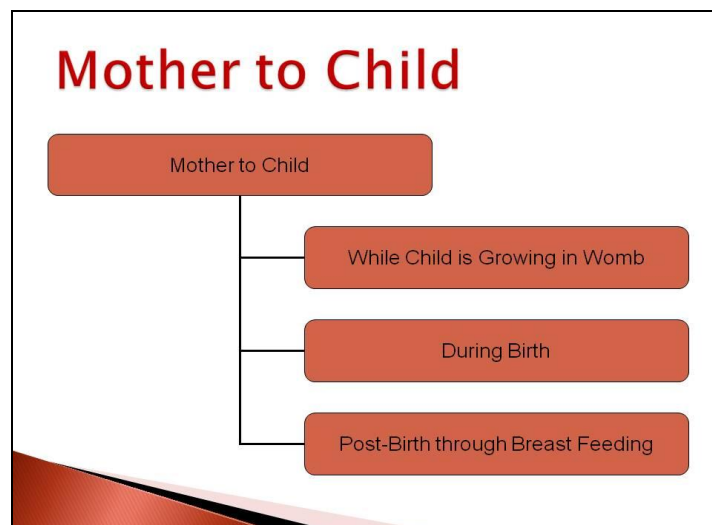
How is HIV NOT spread?

- Air
- Hugging
- Closed mouth kissing
- Sharing clothes, food, utensils, water
- Toilets, showers, swimming pools
- Insect bites (mosquitoes do not inject own or previously bitten person's blood into someone else).
- Feces, saliva, sweat, tears, urine, or vomit (unless there is blood present)

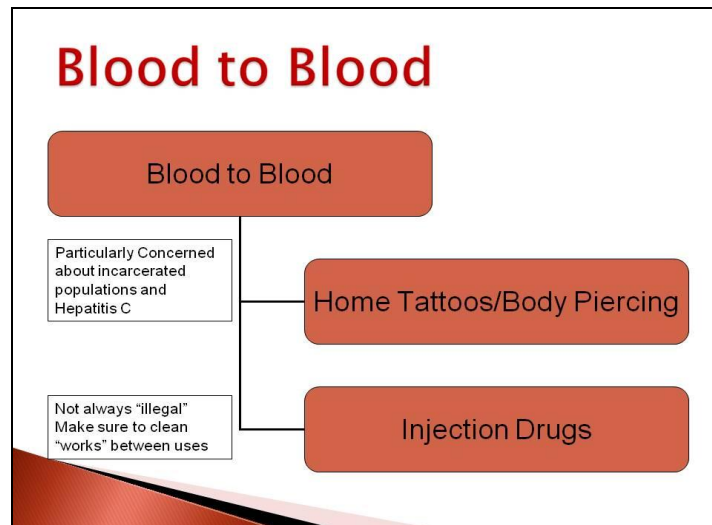
Slide 9



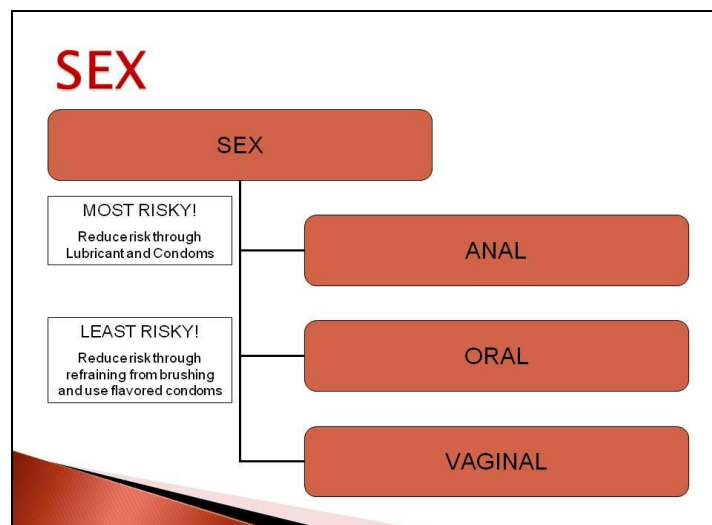
Slide 10



Slide 11



Slide 12



Summary

- ▶ Three Modes of Transmission (Way)
 - Sex
 - Blood to Blood
 - Mother to Child
- Four Fluids of Transmission (How)
 - Semen
 - Vaginal Secretions
 - Blood
 - Breast Milk

PRIMARY MESSAGE!

***ANYONE** that is sexually active and does not know his/her own HIV status, or the HIV status of their partner(s), and engages in one or more of the high risk behaviors above **IS at risk** for being infected with the **HIV** virus.*

How can YOU reduce HIV infection?

- ▶ Know your HIV status
- ▶ Know your partner's HIV status
- ▶ Monogamy (same HIV status)
- ▶ Celibacy
- ▶ Know how to use safer sex products (latex or polyurethane, and female condoms).
- ▶ Stay informed and always ask questions.

4 Stages of HIV

- 1) **Acute:** Begins immediately after infection. Lasts about 4-6 weeks. May have flu-like symptoms, vague –severe, mild-serious.

~~Symptoms often overlooked. Many have NO symptoms!~~

During this stage, the body is going through **seroconversion.**

- HIV is multiplying and replicating rapidly

4 Stages of HIV

2) Asymptomatic:

- ▶ No symptoms. Look and feel healthy
- ▶ Lasts 5-20 yrs, average = 10 years
- ▶ Many people do NOT know that they are infected but can still spread HIV to others

4 Stages of HIV

3) Symptomatic:

- ▶ Begin to develop persistent symptoms such as weight loss or constant cough/cold
- ▶ No official timeline for this stage, varies person to person

4 Stages of HIV

4) **AIDS:** Must receive a clinical diagnosis from a physician.

ABCs of HIV are the T-Cell count and the Viral load. Your soldiers Vs. The enemy

How many T-cells do you think a healthy immune system has?

4 Stages of HIV

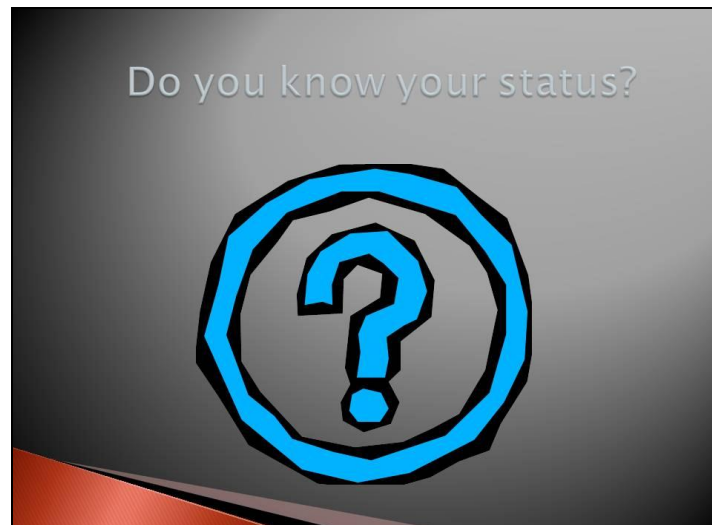
4) **AIDS**

Must meet one of 2 criteria:

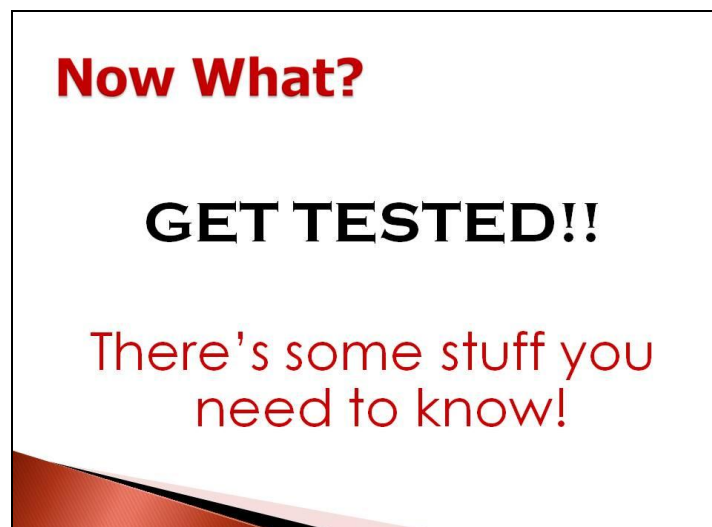
- 1) T-Cell count below 200
- 2) Develop an opportunistic infection
ex: Kaposi's Sarcoma
Pneumocystis Carinii

****Cannot go backwards in the stages****

Slide 21



Slide 22



The HIV Test

- The HIV test looks for HIV antibodies in your body.
- If you have HIV antibodies, your test results be positive. This means you have HIV.
- If you don't have HIV antibodies, your test will be negative. This means one of two things:
 - You don't have HIV.
 - You have HIV, but your body hasn't made enough antibodies to detected yet.

Some Facts About HIV Testing

- It's an **anti-body test**. This means the test is measuring whether or not your body is reacting to being infected. It is NOT measuring the infection.
- The human body may take some time to react to infection. For this reason HIV testing is:
 - 95% Accurate at 3 months
 - 99.9% Accurate at 6 months

This period of time is referred to as the "Window Period"

The Window Period

- ▶ It takes up to 3 months (but as early as 3–4 weeks) after infection for the body to make HIV antibodies.
- ▶ In rare cases, it can take up to 6 months. This called the window period.

Some Facts About HIV Testing

- Testing is conducted in different formats and ways.
- Formats:
 - *Confidential*: name, address, phone number, DOB, SSN, age, race, sex, *risk factor* (information is only fully reported to state health department – NOT accessible for public consumption)
Available at Fan Free Clinic, Minority Health Consortium and Richmond City Health Department
 - *Anonymous*: assigned a #, age, race, sex and *risk factor*
Available ONLY at Crossover Medical Clinic and Vernon J. Harris
ALL OF THESE TESTING OPTIONS ARE FREE!!!

Types of HIV tests

▶ **Full Blood Draws:**

Advantage: More likely to show a recent infection.

Disadvantage: Needle is used for blood draw, may take 1–2 weeks for a result!

▶ **OraQuick:** Oral swab test, takes 20 minutes for results! 99.8% accurate.

**I am in a committed relationship.
WHY TEST?**

*1 and 5 (20%) of people who
are HIV positive do not
know it!*

HIV Review

- For what does HIV stand?
- For what does AIDS stand?
- What are the three ways (modes) in which HIV is transmitted?
- There are four fluids that are how HIV is transmitted. Name them.

Virginia laws regarding HIV disclosure

Va. Code Ann. § 18.2-67.4:1(A) **Class 6 Felony** Any person who, knowing he or she is infected with HIV, has sexual intercourse, cunnilingus, fellatio, analingus or anal intercourse with the intent to transmit the infection to another person shall be guilty of a class 6 felony.

Va. Code Ann. § 18.2-67.4:1 **Class 1 Misdemeanor** Any person who, knowing he or she is infected with HIV, has sexual intercourse, cunnilingus, fellatio, analingus or anal intercourse without having previously disclosed the existence of his or her HIV infection to the other person shall be guilty of a class 1 misdemeanor.

Va. Code Ann. § 32.1-289.2 **Class 6 Felony** Any person who donates or sells, attempts to donate or sell, or consents to the donation or sale of blood, other body fluids, organs or tissues, knowing that the donor is or was infected with HIV and having been instructed that such material may transmit HIV infection, is guilty of a class 6 felony. (Does not apply to the donation of infected blood, other body fluids, organs or tissues or body parts for use in medical or scientific research.)

Slide 31


SPECIALTY DOCTORS FOR THE UNINSURED

Cross Over Health Center, # 804 233-5016 ext. 130
108 Cowardin Ave, Richmond 23224
~~~For the Uninsured ONLY~~~  
Physicians: Vivian Bruzese  
Website: <http://www.hivcenter.vcu.edu/services/crossover.html>

**Hayes Willis Health Center, # 804 230-2087, Stephanie Oneal**  
4730 N. Southside Plaza, Unit 16, Richmond 23224  
~~~For the Uninsured and Insured~~~  
Most insurance accepted
What to expect:
Call the above number and schedule a social work intake
Complete financial paperwork and meet with nurse for lab work
Approximately 2-3 wks for 1st doctor's appt
May be a waiting list for the initial meeting
Bring proof of income (last 3 pay stubs) during for 1st meeting
Website: <http://www.hivcenter.vcu.edu/services/willis.html>

VCU (formerly MCV) Infectious Disease Clinic, # 804 828-6163
1200 E. Broad Street, West Hospital
~~~For the Uninsured and Insured~~~  
**What to expect:**  
Call the above number and schedule a financial screening  
Upon completion of screening you will be set up for treatment  
Website: <http://www.hivcenter.vcu.edu/services/vcuide.html>

**Vernon J. Harris Wellness Center, #253-1966**  
719 N. 25<sup>th</sup> Street, Churchill Richmond  
Nurse Practitioner: Joy Zeh  
~~~For the Uninsured and Insured~~~  
What to expect:
For uninsured, financial screening = sliding scale payments
Website: <http://www.hivcenter.vcu.edu/services/harris.html>



Slide 32

Special Thanks

- ▶ Susan Tellier & Shawn McNulty FanFree Clinic
- ▶ Fan Free Clinic
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(804) 358-6343

Vita

Kristina B. Hood was born on March 29, 1979, in Newport News, Virginia. She graduated from Lafayette High, Williamsburg, Virginia in 1997. She received her Bachelor of Science in Psychology from Christopher Newport University, Newport News, Virginia in 2002 and her Master of Science in Criminal Justice, Sociology, and Psychology from Virginia Commonwealth University in 2005, 2007, and 2009. Her research interests include preventive health behaviors among minorities and underserved populations, specifically HIV prevention research, and promoting positive health outcomes among minority populations.